

# Construction Volume and Costs

1915-1954

A Statistical Supplement to

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## CONSTRUCTION REVIEW

Historical  
Statistics

Descriptions  
of Sources  
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Definitions  
of Terms



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# CONSTRUCTION VOLUME AND COSTS, 1915-54

## A Statistical Supplement to Volume I of Construction Review

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## Foreword\*

This Supplement to Volume I of Construction Review presents historical statistics on construction volume and costs, and it includes some of the statistical series that provide basic source data for deriving the series on the value of new construction put in place. The present Supplement, "Construction Volume and Costs, 1915-54," replaces documents issued separately in previous years by the Department of Commerce and the Department of Labor to their respective publications "Construction and Building Materials" and "Construction," which were merged in January 1955 into "Construction Review," a monthly publication issued jointly by the two agencies.

### Construction Value Estimates

Estimates of the value of new construction put in place are prepared jointly by the Business and Defense Services Administration, U. S. Department of Commerce, and the Bureau of Labor Statistics, U. S. Department of Labor. The Bureau of Labor Statistics is responsible for estimating the value of private housekeeping residential construction and all public construction; the Business and Defense Services Administration is responsible for all other private construction—including private nonresidential building, farm construction, and privately owned public-utilities construction. Responsibility for the seasonally adjusted estimates of the value series is shared similarly. Adjustment of the value series in terms of 1947-49 prices is done by the Business and Defense Services Administration, which also compiles the maintenance and repair estimates.

Estimates of the value of new construction include structural additions and alterations. The majority of the value tabulations shown here are for new construction only, although some provide maintenance and repair data also. Thus a total figure is given on the value of construction accomplished in a given period, covering new construction plus maintenance and repair on existing types of building and nonbuilding.

Some of the primary source data used in the development or analysis of the construction value estimates are also shown in this volume. For each table shown, appropriate credit is given to the various private or governmental agencies responsible for compiling the series.

While some of the basic sources of the value data have been expanded, in line with a continual effort to improve the series, the techniques for preparing these estimates have not been changed in the past year and there have been no changes in the definitions of categories. However, the category previously labeled "Warehouses, office and loft buildings" (under "Commercial building") has been shortened to read "Office buildings and warehouses."

### Reliability of the Estimates

The degree of error in the estimates of expenditures cannot be measured statistically and, because of the uneven quality of some of the basic source data, the accuracy of the figures may vary considerably between types (see Appendix B). Thus, for example, the estimates for farm construction are probably much less reliable than those for public utilities. Moreover, the degree of accuracy obtained in the estimates has varied with the resources available for searching and processing appropriate secondary data, and for conducting pertinent original surveys.

In general, the larger the coverage of the expenditures the more reliable are the figures. For instance, annual estimates are better than monthly, and the total for all types of construction is more nearly accurate than the data for any of the individual types of work. Relatively small month-to-month changes should be used with caution because most monthly data are based on early studies to observe normal construction patterns, and not on any recent surveys of actual observed progress.

### State Estimates

Estimates of the value of new construction by State or region are not available for any period since 1952 because of budget limitations. A limited supply of "New Construction by Regions and States, 1939-52," is available, at 75 cents each, from the Sales and Distribution Division, Office of Publications Management, U. S. Department of Commerce, Washington 25, D. C.

\* Data for this Supplement to Construction Review were compiled by staff of the Department of Commerce and the Department of Labor. The publication was planned and the material assembled by Bruce M. Fowler (Department of Commerce), assisted by Mary F. Carney (Department of Labor), and Bernece M. Adelstein (Department of Commerce). The maintenance and repair estimates were compiled by Benjamin D. Kaplan (Department of Commerce).



# CONSTRUCTION VOLUME AND COSTS, 1915-54

## Section I—VALUE OF CONSTRUCTION

Table 1.—TOTAL CONSTRUCTION, 1915-54

[Millions of dollars]

Year	Total construction activity	New construction				Maintenance and repair <sup>1</sup>
		Total	Private	Public <sup>1</sup>	Percent public of total new	
1915.....	4,969	3,262	2,543	719	22.0	1,707
1916.....	5,653	3,849	3,141	708	18.4	1,804
1917.....	6,492	4,569	3,290	1,279	28.0	1,923
1918.....	7,361	5,118	2,880	2,238	43.7	2,243
1919.....	8,852	6,296	4,320	1,976	31.4	2,556
1920.....	9,726	6,749	5,397	1,352	20.0	2,977
1921.....	8,862	6,004	4,440	1,564	26.0	2,858
1922.....	10,600	7,647	5,963	1,684	22.0	2,953
1923.....	12,534	9,332	7,710	1,622	17.4	3,202
1924.....	13,779	10,407	8,506	1,901	18.3	3,372
1925.....	14,963	11,439	9,301	2,138	18.7	3,524
1926.....	15,823	12,082	9,938	2,144	17.7	3,741
1927.....	15,949	12,034	9,625	2,409	20.0	3,915
1928.....	15,606	11,641	9,156	2,485	21.3	3,965
1929.....	14,979	10,793	8,307	2,486	23.0	4,186
1930.....	12,599	8,741	5,883	2,858	32.7	3,858
1931.....	9,642	6,427	3,768	2,659	41.4	3,215
1932.....	6,089	3,538	1,676	1,862	52.6	2,561
1933.....	5,342	2,879	1,231	1,648	57.2	2,463
1934.....	6,646	3,720	1,509	2,211	59.4	2,926
1935.....	7,359	4,232	1,999	2,233	52.8	3,127
1936.....	10,270	6,497	2,981	3,516	54.1	3,773
1937.....	10,871	6,999	3,903	3,096	44.2	3,872
1938.....	10,840	6,980	3,560	3,420	49.0	3,860
1939.....	12,152	8,198	4,389	3,809	46.5	3,954
1940.....	12,775	8,682	5,054	3,628	41.8	4,093
1941.....	16,415	11,957	6,206	5,751	48.1	4,458
1942.....	18,649	14,075	3,415	10,660	75.7	4,574
1943.....	13,271	8,301	1,979	6,322	76.2	4,970
1944.....	10,541	5,259	2,186	3,073	58.4	5,282
1945.....	11,692	5,633	3,235	2,398	42.6	6,059
1946.....	20,016	12,000	9,638	2,362	19.7	8,016
1947.....	27,007	16,689	13,256	3,433	20.6	10,318
1948.....	33,409	21,678	16,853	4,825	22.3	11,731
1949.....	34,677	22,789	16,384	6,405	28.1	11,888
1950.....	40,448	28,454	21,454	7,000	24.6	11,994
1951.....	44,482	31,182	21,764	9,418	30.2	13,300
1952.....	47,054	33,008	22,107	10,901	33.0	14,056
1953.....	49,536	35,271	23,877	11,394	32.3	14,265
1954.....	52,085	37,577	25,768	11,809	31.4	14,508

<sup>1</sup> Includes work relief expenditures in the years 1933-43.

Table 2.—NEW PRIVATE CONSTRUCTION, 1915-54  
[Millions of dollars]

Year	Total private <sup>1</sup>	Residential (excluding farm)				Nonresidential building <sup>2</sup>	
		Total	New dwelling units	Additions and alterations	Non-house-keeping	Total	Industrial
1915.....	2,543	1,220	1,040	140	40	478	197
1916.....	3,141	1,375	1,170	145	60	716	262
1917.....	3,290	1,190	1,000	125	65	800	364
1918.....	2,880	915	760	110	45	731	440
1919.....	4,320	1,850	1,645	130	75	1,082	621
1920.....	5,397	2,015	1,710	175	130	1,964	1,099
1921.....	4,440	2,105	1,795	185	125	1,434	574
1922.....	5,963	3,360	2,955	200	205	1,457	467
1923.....	7,710	4,400	3,960	210	230	1,697	549
1924.....	8,506	5,060	4,575	230	255	1,675	460
1925.....	9,301	5,515	4,910	250	355	2,060	513
1926.....	9,938	5,600	4,920	270	410	2,513	727
1927.....	9,625	5,160	4,540	290	330	2,534	696
1928.....	9,156	4,770	4,195	315	260	2,573	802
1929.....	8,307	3,625	3,040	340	245	2,694	940
1930.....	5,883	2,075	1,570	305	200	2,003	532
1931.....	3,768	1,565	1,320	175	70	1,099	221
1932.....	1,676	630	485	105	40	502	74
1933.....	1,231	470	290	145	35	406	176
1934.....	1,509	625	380	200	45	456	191
1935.....	1,999	1,010	710	250	50	472	158
1936.....	2,981	1,565	1,210	295	60	713	266
1937.....	3,903	1,875	1,475	320	80	1,085	482
1938.....	3,560	1,990	1,620	295	75	764	232
1939.....	4,389	2,680	2,270	320	90	786	254
1940.....	5,054	2,985	2,560	335	90	1,025	442
1941.....	6,206	3,510	3,040	375	95	1,482	801
1942.....	3,415	1,715	1,440	225	50	635	346
1943.....	1,979	885	710	160	15	233	154
1944.....	2,186	815	570	220	25	351	208
1945.....	3,235	1,100	720	340	40	1,020	642
1946.....	9,638	4,015	3,300	570	145	3,341	1,680
1947.....	13,256	6,310	5,450	735	125	3,142	1,702
1948.....	16,853	8,580	7,500	925	155	3,621	1,397
1949.....	16,384	8,267	7,257	825	185	3,228	972
1950.....	21,454	12,600	11,525	900	175	3,777	1,042
1951.....	21,764	10,973	9,849	934	190	5,152	2,117
1952.....	22,107	11,100	9,870	1,045	185	5,014	2,329
1953.....	23,877	11,930	10,555	1,108	267	5,680	2,229
1954.....	25,768	13,496	12,070	1,130	296	6,250	2,090

<sup>1</sup>Public industrial and commercial building not segregable from private construction, 1915-32; amount believed negligible. <sup>2</sup>Excludes nonresidential building by privately-owned public utilities.

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Table 2.—NEW PRIVATE CONSTRUCTION, 1915-54—Continued  
[Millions of dollars]

Year	Nonresidential building—Continued <sup>2</sup>						
	Office buildings and warehouses	Stores, restaurants and garages	Religious	Educational	Social and recreational	Hospital and institutional	Miscellaneous non-residential
1915.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)
1916.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)
1917.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)
1918.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)
1919.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)
1920.....	258	367	55	22	104	30	29
1921.....	258	312	71	32	119	44	24
1922.....	286	327	103	61	132	53	28
1923.....	292	424	117	83	128	57	47
1924.....	304	436	130	91	131	63	60
1925.....	357	583	165	108	199	79	56
1926.....	393	714	177	108	255	83	56
1927.....	409	736	179	106	252	106	50
1928.....	451	670	168	107	224	100	51
1929.....	619	516	147	120	173	104	66
1930.....	596	297	135	118	148	109	68
1931.....	276	178	87	100	123	71	43
1932.....	117	106	45	53	60	34	13
1933.....	44	86	22	15	34	10	19
1934.....	66	107	21	14	33	9	15
1935.....	75	136	28	17	34	10	14
1936.....	111	179	34	40	54	17	12
1937.....	137	250	44	42	73	31	16
1938.....	95	190	51	40	97	35	24
1939.....	81	211	48	39	100	31	22
1940.....	91	257	59	50	67	33	26
1941.....	123	286	62	58	72	46	34
1942.....	62	93	31	24	30	29	20
1943.....	14	19	6	6	7	11	14
1944.....	17	39	11	11	17	26	22
1945.....	56	147	26	31	27	37	54
1946.....	331	801	76	123	125	85	111
1947.....	237	619	126	174	99	110	75
1948.....	352	901	251	253	224	126	117
1949.....	321	706	360	269	262	202	136
1950.....	402	886	409	294	247	344	133
1951.....	544	827	452	345	164	419	284
1952.....	515	622	399	351	125	394	288
1953.....	739	1,052	472	426	163	317	282
1954.....	958	1,254	593	529	228	337	321

<sup>1</sup> Not available separately; included in total.<sup>2</sup> Excludes nonresidential building by privately-owned public utilities.

Table 2.—NEW PRIVATE CONSTRUCTION, 1915-54—Continued

[Millions of dollars]

Year	Farm			Public utility				
	Total	Operators' dwellings	Service buildings	Total	Railroad	Local transit	Petroleum pipe line	Electric light and power <sup>1</sup>
1915.....	229	109	120	549	241	112	20	92
1916.....	324	154	170	658	281	109	20	117
1917.....	449	199	250	788	361	154	20	123
1918.....	478	203	275	697	365	107	24	102
1919.....	653	273	380	673	266	63	56	156
1920.....	566	266	300	771	184	82	41	262
1921.....	223	98	125	604	184	59	30	163
1922.....	269	119	150	787	176	85	41	229
1923.....	317	142	175	1,191	361	74	53	412
1924.....	298	133	165	1,356	365	56	70	463
1925.....	311	141	170	1,302	393	52	55	421
1926.....	297	137	160	1,415	491	51	36	362
1927.....	355	160	195	1,450	462	77	80	362
1928.....	331	156	175	1,372	433	90	53	338
1929.....	307	147	160	1,578	510	82	97	350
1930.....	193	107	86	1,527	521	85	30	377
1931.....	97	59	38	946	292	69	77	225
1932.....	37	24	13	467	139	29	37	109
1933.....	49	29	20	261	94	21	7	59
1934.....	66	36	30	326	128	30	12	66
1935.....	126	61	65	363	116	40	20	87
1936.....	161	76	85	518	149	45	41	136
1937.....	207	100	107	705	199	39	67	218
1938.....	171	79	92	605	119	41	21	267
1939.....	212	106	106	683	137	54	35	303
1940.....	240	145	95	771	167	50	30	311
1941.....	310	182	128	872	187	30	60	305
1942.....	260	135	125	786	197	12	80	255
1943.....	284	121	163	570	211	14	77	144
1944.....	283	108	175	725	247	15	71	163
1945.....	267	100	167	827	264	18	42	245
1946.....	856	409	447	1,374	258	35	63	443
1947.....	1,397	683	714	2,338	318	56	121	793
1948.....	1,544	738	806	3,043	379	60	150	1,058
1949.....	1,488	695	793	3,323	352	40	157	1,368
1950.....	1,635	763	872	3,330	315	40	165	1,268
1951.....	1,846	863	983	3,729	399	40	175	1,353
1952.....	1,905	890	1,015	4,003	438	35	230	1,650
1953.....	1,731	809	922	4,416	442	30	271	1,829
1954.....	1,560	729	831	4,341	353	25	300	1,900

<sup>1</sup> Includes construction with Rural Electrification Administration funds.

Table 2.—NEW PRIVATE CONSTRUCTION, 1915-54—Continued

[Millions of dollars]

Year	Public utility—Continued					All other private		
	Manufactured and natural gas			Telephone	Telegraph	Total	Sewer and water	All other <sup>1</sup>
	Total	Manufactured gas	Natural gas					
1915.....	41	(2)	(2)	35	8	67	10	57
1916.....	70	(2)	(2)	53	8	68	9	59
1917.....	45	(2)	(2)	74	11	63	9	54
1918.....	26	(2)	(2)	58	15	59	10	49
1919.....	56	(2)	(2)	64	12	62	12	50
1920.....	78	(2)	(2)	109	15	81	15	66
1921.....	66	(2)	(2)	90	12	74	17	57
1922.....	139	(2)	(2)	107	10	90	18	72
1923.....	133	(2)	(2)	143	15	105	18	87
1924.....	206	(2)	(2)	177	19	117	24	93
1925.....	171	(2)	(2)	192	18	113	23	90
1926.....	248	(2)	(2)	206	21	113	22	91
1927.....	257	(2)	(2)	196	16	126	22	104
1928.....	212	(2)	(2)	227	19	110	19	91
1929.....	185	72	113	328	26	103	18	85
1930.....	181	63	118	310	23	85	26	59
1931.....	117	48	69	154	12	61	20	41
1932.....	66	30	36	80	7	40	11	29
1933.....	35	13	22	41	4	45	6	39
1934.....	43	16	27	43	4	36	7	29
1935.....	48	18	30	48	4	28	9	19
1936.....	77	16	61	62	5	24	9	15
1937.....	80	22	58	96	6	31	9	22
1938.....	65	17	48	87	5	30	9	21
1939.....	61	16	45	89	4	28	9	19
1940.....	91	33	58	117	5	33	15	18
1941.....	111	40	71	173	6	32	18	14
1942.....	87	34	53	150	5	19	8	11
1943.....	63	15	48	56	5	7	3	4
1944.....	146	14	132	78	5	12	7	5
1945.....	141	21	120	112	5	21	11	10
1946.....	270	42	228	298	7	52	18	34
1947.....	540	78	462	502	8	69	33	36
1948.....	683	83	600	706	7	65	39	26
1949.....	873	66	807	527	6	78	24	54
1950.....	1,102	61	1,041	435	5	112	32	80
1951.....	1,275	59	1,216	482	5	64	27	37
1952.....	1,080	55	1,025	565	5	85	38	47
1953.....	1,229	50	1,179	610	5	120	44	76
1954.....	1,108	58	1,050	650	5	121	54	67

<sup>1</sup>Includes roads, bridges and miscellaneous nonstructural items such as parks and playgrounds.<sup>2</sup>Not available separately; included in total.



Table 3.—NEW PUBLIC CONSTRUCTION, 1915-54

[Millions of dollars]

Year	Total public <sup>1</sup>	Residential building	Nonresidential building				
			Total	Industrial	Commercial	Public administration	Educational
1915.....	719	.....	217	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
1916.....	708	.....	207	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
1917.....	1,279	.....	192	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
1918.....	2,238	28	199	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
1919.....	1,976	14	246	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
1920.....	1,352	.....	283	( <sup>1</sup> )	( <sup>1</sup> )	38	190
1921.....	1,564	.....	387	( <sup>1</sup> )	( <sup>1</sup> )	51	274
1922.....	1,684	.....	481	( <sup>1</sup> )	( <sup>1</sup> )	55	342
1923.....	1,622	.....	481	( <sup>1</sup> )	( <sup>1</sup> )	44	346
1924.....	1,901	.....	494	( <sup>1</sup> )	( <sup>1</sup> )	39	353
1925.....	2,138	.....	573	( <sup>1</sup> )	( <sup>1</sup> )	56	400
1926.....	2,144	.....	603	( <sup>1</sup> )	( <sup>1</sup> )	70	399
1927.....	2,409	.....	596	( <sup>1</sup> )	( <sup>1</sup> )	84	367
1928.....	2,485	.....	638	( <sup>1</sup> )	( <sup>1</sup> )	85	378
1929.....	2,486	.....	659	( <sup>1</sup> )	( <sup>1</sup> )	109	389
1930.....	2,858	.....	660	( <sup>1</sup> )	( <sup>1</sup> )	128	364
1931.....	2,659	.....	612	( <sup>1</sup> )	( <sup>1</sup> )	183	285
1932.....	1,862	.....	415	( <sup>1</sup> )	( <sup>1</sup> )	183	130
1933.....	1,648	.....	230	2	4	109	52
1934.....	2,211	1	363	11	13	87	146
1935.....	2,233	9	328	2	7	90	153
1936.....	3,516	61	701	4	14	161	366
1937.....	3,096	93	550	2	22	143	253
1938.....	3,420	35	672	12	18	165	311
1939.....	3,809	65	970	23	32	234	468
1940.....	3,628	200	615	164	34	149	156
1941.....	5,751	430	1,646	1,280	21	105	158
1942.....	10,660	545	3,685	3,437	6	56	128
1943.....	6,322	739	2,010	1,870	4	15	63
1944.....	3,073	211	1,361	1,230	4	11	41
1945.....	2,398	80	937	755	4	15	59
1946.....	2,362	374	354	113	4	16	101
1947.....	3,433	200	599	96	(3)	26	287
1948.....	4,825	156	1,301	196	(3)	74	618
1949.....	6,405	359	2,068	177	(3)	121	934
1950.....	7,000	345	2,384	224	(3)	171	1,133
1951.....	9,418	595	3,497	974	(3)	179	1,513
1952.....	10,901	654	4,136	1,684	(3)	123	1,610
1953.....	11,394	556	4,346	1,771	(3)	134	1,714
1954.....	11,809	336	4,641	1,506	(3)	224	2,134

<sup>1</sup>Public industrial and commercial building not segregable from private construction, 1915-32; amount believed negligible. <sup>2</sup>Not available separately; included in total. <sup>3</sup>Less than 0.5 million dollars.

Table 3.—NEW PUBLIC CONSTRUCTION, 1915-54—Continued

[Millions of dollars]

Year	Nonresidential building—continued			Military facilities	Sewer and water		
	Social and recreational	Hospital and institutional	Miscellaneous non-residential		Total	Sewage disposal	Water supply
1915.....	(1)	(1)	(1)	17	106	52	54
1916.....	(1)	(1)	(1)	21	95	48	49
1917.....	(1)	(1)	(1)	608	91	45	46
1918.....	(1)	(1)	(1)	1,555	94	38	56
1919.....	(1)	(1)	(1)	1,089	124	53	71
1920.....	12	33	10	161	153	67	86
1921.....	14	40	8	49	178	78	100
1922.....	15	60	9	25	201	88	113
1923.....	20	55	16	16	203	90	113
1924.....	22	60	20	9	263	108	155
1925.....	37	61	19	8	278	133	145
1926.....	47	68	19	11	285	145	140
1927.....	48	80	17	12	312	174	138
1928.....	50	108	17	15	300	183	117
1929.....	38	101	22	19	253	127	126
1930.....	28	118	22	29	343	142	201
1931.....	19	110	15	40	270	114	156
1932.....	16	83	3	34	156	69	87
1933.....	7	49	7	36	95	45	50
1934.....	37	51	16	47	173	102	71
1935.....	27	38	11	37	175	101	74
1936.....	63	74	19	29	342	230	112
1937.....	44	73	13	37	311	209	102
1938.....	49	97	20	62	355	235	120
1939.....	58	127	28	125	371	243	128
1940.....	26	54	32	385	338	184	154
1941.....	22	42	18	1,620	252	118	134
1942.....	9	35	14	5,016	169	76	93
1943.....	8	44	6	2,550	107	37	70
1944.....	7	58	10	837	79	26	53
1945.....	9	85	10	690	97	37	60
1946.....	11	85	24	188	194	97	97
1947.....	18	85	87	204	351	188	163
1948.....	67	223	123	158	535	300	235
1949.....	108	477	251	137	619	354	265
1950.....	140	496	220	177	659	383	276
1951.....	107	528	196	887	775	425	350
1952.....	51	473	186	1,388	790	435	355
1953.....	101	365	261	1,307	883	520	363
1954.....	122	365	290	1,030	982	568	414

1 Not available separately; included in total.

Table 3.—NEW PUBLIC CONSTRUCTION, 1915-54—Continued

[Millions of dollars]

Year	Highway					Miscellaneous public service enterprises
	Total	Federal	State	County	Municipal	
1915.....	302	(1)	58	106	138	40
1916.....	314	(1)	54	114	146	42
1917.....	320	(1)	66	109	145	40
1918.....	296	1	78	105	112	36
1919.....	429	3	134	127	165	34
1920.....	656	4	250	186	216	39
1921.....	853	3	295	356	199	41
1922.....	876	4	304	346	222	47
1923.....	805	7	305	258	235	45
1924.....	987	9	411	271	296	65
1925.....	1,082	10	424	277	371	120
1926.....	1,067	10	390	279	388	111
1927.....	1,222	10	438	303	471	192
1928.....	1,289	11	522	294	462	157
1929.....	1,266	11	540	269	446	151
1930.....	1,516	17	692	310	497	157
1931.....	1,355	22	710	259	364	209
1932.....	958	21	535	183	219	135
1933.....	847	44	498	157	148	65
1934.....	1,000	61	568	237	134	55
1935.....	845	64	434	210	137	71
1936.....	1,362	53	628	497	184	167
1937.....	1,226	42	601	429	154	134
1938.....	1,421	37	562	638	184	137
1939.....	1,381	35	537	560	249	136
1940.....	1,302	30	597	468	207	131
1941.....	1,066	26	548	350	142	141
1942.....	734	17	420	209	88	85
1943.....	446	7	279	105	55	49
1944.....	362	7	224	78	53	46
1945.....	398	11	236	87	64	55
1946.....	895	26	574	171	124	99
1947.....	1,451	34	926	262	229	164
1948.....	1,774	39	1,142	323	270	185
1949.....	2,131	57	1,348	384	342	203
1950.....	2,272	46	1,507	352	367	185
1951.....	2,518	42	1,718	369	389	213
1952.....	2,820	50	1,892	455	423	193
1953.....	3,160	58	2,147	512	443	200
1954.....	3,750	55	2,656	564	475	216

<sup>1</sup>Less than 0.5 million dollars.

Table 3.—NEW PUBLIC CONSTRUCTION, 1915-54—Continued

[Millions of dollars]

Year	Conservation and development					All other public <sup>1</sup>
	Total	Bureau of Reclamation	Corps of Engineers	T.V.A.	Other	
1915.....	36	7	27	.....	2	1
1916.....	28	6	20	.....	2	1
1917.....	27	6	18	.....	3	1
1918.....	29	6	20	.....	3	1
1919.....	30	5	29	.....	5	1
1920.....	55	5	41	.....	9	5
1921.....	52	7	36	.....	9	4
1922.....	48	9	30	.....	9	6
1923.....	65	9	43	.....	13	7
1924.....	79	8	55	.....	16	4
1925.....	73	7	51	.....	15	4
1926.....	61	6	41	.....	14	6
1927.....	63	6	40	.....	17	12
1928.....	72	7	46	.....	19	14
1929.....	115	8	59	.....	48	23
1930.....	137	11	75	.....	51	16
1931.....	156	20	81	.....	55	17
1932.....	150	26	81	.....	43	14
1933.....	359	26	102	5	226	16
1934.....	518	35	142	17	324	54
1935.....	700	47	177	28	448	68
1936.....	658	56	192	32	378	196
1937.....	605	60	176	30	339	140
1938.....	551	67	157	31	296	187
1939.....	570	72	157	32	309	191
1940.....	528	74	158	38	258	129
1941.....	500	79	150	83	179	96
1942.....	357	60	150	131	16	2 69
1943.....	285	42	160	76	7	2 136
1944.....	163	36	73	45	9	2 14
1945.....	130	39	63	18	10	11
1946.....	240	60	147	17	16	18
1947.....	394	125	222	28	19	70
1948.....	629	175	383	39	32	87
1949.....	793	223	501	34	35	95
1950.....	881	255	538	48	40	97
1951.....	853	207	480	109	57	80
1952.....	854	182	483	124	65	66
1953.....	830	157	489	124	60	112
1954.....	704	129	400	125	50	148

<sup>1</sup>Includes publicly-owned parks and playgrounds, memorials, etc. <sup>2</sup>Includes petroleum pipe lines as follows: \$25 million in 1942, \$125 million in 1943, and \$4 million in 1944.

Table 4.—MAINTENANCE AND REPAIR EXPENDITURES, 1915-54

[Millions of dollars]

Year	Total maintenance and repairs	Residential buildings (excluding farms)	Nonresidential buildings	Farm buildings			Military facilities	Conservation and development (Corps of Engineers)
				Total	Operators' dwellings	Service buildings		
1915.....	1,707	506	200	236	86	150	( <sup>1</sup> )	8
1916.....	1,804	521	210	256	91	165	( <sup>1</sup> )	8
1917.....	1,823	551	230	266	101	165	( <sup>1</sup> )	8
1918.....	2,243	565	260	257	107	150	( <sup>1</sup> )	8
1919.....	2,556	595	280	287	122	165	( <sup>1</sup> )	12
1920.....	2,977	625	290	299	89	210	( <sup>1</sup> )	16
1921.....	2,858	670	320	192	72	120	27	16
1922.....	2,953	714	340	226	83	143	20	14
1923.....	3,202	759	360	296	130	166	17	16
1924.....	3,372	833	380	285	126	159	18	18
1925.....	3,524	908	390	278	121	157	19	20
1926.....	3,741	982	410	274	117	157	19	21
1927.....	3,915	1,056	440	288	127	161	19	23
1928.....	3,965	1,131	460	294	122	172	22	24
1929.....	4,186	1,222	470	324	136	188	24	24
1930.....	3,858	1,111	460	238	92	146	23	26
1931.....	3,215	959	310	170	69	101	23	27
1932.....	2,561	752	230	103	45	58	22	26
1933.....	2,463	728	214	145	66	79	20	26
1934.....	2,926	837	320	179	84	95	19	27
1935.....	3,127	909	358	259	114	145	20	29
1936.....	3,773	1,066	468	254	114	140	21	30
1937.....	3,872	1,154	467	291	123	168	21	31
1938.....	3,860	1,068	471	276	118	158	22	33
1939.....	3,954	1,154	468	318	129	189	27	37
1940.....	4,093	1,256	487	330	140	190	46	37
1941.....	4,458	1,333	526	405	175	230	94	40
1942.....	4,574	1,232	556	353	165	188	219	45
1943.....	4,970	1,217	547	345	182	163	314	49
1944.....	5,282	1,315	547	279	162	117	317	53
1945.....	6,059	1,527	833	241	151	90	336	63
1946.....	8,016	2,705	1,575	458	286	172	275	69
1947.....	10,318	4,200	1,955	574	184	390	240	73
1948.....	11,731	4,800	2,250	618	200	418	258	87
1949.....	11,888	4,800	2,285	581	188	393	295	91
1950.....	11,994	4,600	2,360	639	208	431	369	83
1951.....	13,300	5,000	2,540	722	234	488	614	88
1952.....	14,056	5,300	2,672	744	241	503	702	99
1953.....	14,265	5,300	2,799	677	219	458	637	87
1954.....	14,508	5,700	2,868	609	197	412	579	82

<sup>1</sup> Included in "All other," 1915-20.



Table 4.—MAINTENANCE AND REPAIR EXPENDITURES, 1915-54—Continued

[Millions of dollars]

Year	Public utilities							
	Total	Railroad	Local transit	Petroleum pipe lines	Electric light and power	Gas	Telephone	Telegraph
1915.....	498	410	51	3	11	7	14	2
1916.....	543	450	53	3	12	7	16	2
1917.....	568	470	55	3	12	7	18	3
1918.....	804	690	65	3	15	7	20	4
1919.....	956	820	74	7	18	8	25	4
1920.....	1,216	1,060	83	10	20	8	30	5
1921.....	968	800	93	8	23	8	31	5
1922.....	964	780	102	9	26	9	33	5
1923.....	1,051	860	108	8	26	9	35	5
1924.....	1,080	840	147	9	31	10	37	6
1925.....	1,104	860	146	9	33	10	40	6
1926.....	1,156	920	128	10	36	11	44	7
1927.....	1,142	920	107	10	38	11	48	8
1928.....	1,083	880	81	11	39	12	52	8
1929.....	1,119	900	89	10	40	14	58	8
1930.....	948	740	82	9	41	14	55	7
1931.....	742	560	67	8	43	14	45	5
1932.....	527	370	52	7	44	12	38	4
1933.....	486	340	47	7	42	11	35	4
1934.....	554	390	52	9	49	12	38	4
1935.....	594	420	53	12	54	12	39	4
1936.....	686	480	72	11	63	13	42	5
1937.....	734	520	63	15	75	13	43	5
1938.....	660	450	59	16	73	13	44	5
1939.....	697	490	60	13	73	12	44	5
1940.....	733	520	55	15	77	13	48	5
1941.....	857	634	50	18	81	13	55	6
1942.....	1,053	832	42	16	84	13	60	6
1943.....	1,406	1,150	56	20	94	15	64	7
1944.....	1,610	1,310	60	28	115	21	68	8
1945.....	1,789	1,462	61	37	123	23	75	8
1946.....	1,565	1,198	65	36	130	28	99	9
1947.....	1,676	1,265	46	37	161	37	120	10
1948.....	1,873	1,405	44	42	184	45	143	10
1949.....	1,843	1,343	43	44	198	50	156	9
1950.....	1,860	1,342	45	44	209	51	160	9
1951.....	2,102	1,543	45	51	226	60	168	9
1952.....	2,166	1,584	47	53	232	60	181	9
1953.....	2,286	1,652	46	55	267	65	192	9
1954.....	2,091	1,410	45	57	281	76	213	9

Table 4.—MAINTENANCE AND REPAIR EXPENDITURES, 1915-54—Continued

[Millions of dollars]

Year	Highways				Sewage disposal and water supply			All other
	Total	State	County	Municipal	Total	Sewage disposal	Water supply	
1915.....	160	110	(1)	50	64	9	55	35
1916.....	160	112	(1)	48	68	10	58	38
1917.....	171	116	(1)	55	80	12	68	49
1918.....	177	120	(1)	57	99	15	84	73
1919.....	223	144	(1)	79	118	18	100	85
1920.....	304	203	(1)	101	137	22	115	90
1921.....	442	90	226	126	140	22	118	83
1922.....	467	108	225	134	150	24	126	58
1923.....	487	117	230	140	153	25	128	63
1924.....	531	156	223	152	161	27	134	66
1925.....	579	182	226	171	157	26	131	69
1926.....	636	186	255	195	170	29	141	73
1927.....	692	201	279	212	178	31	147	77
1928.....	693	186	297	210	180	31	149	78
1929.....	736	198	310	228	185	33	152	82
1930.....	772	221	321	230	204	36	168	76
1931.....	716	197	294	225	205	37	168	63
1932.....	665	218	254	193	186	34	152	50
1933.....	635	213	241	181	161	30	131	48
1934.....	762	226	325	211	171	32	139	57
1935.....	713	234	285	194	184	35	149	61
1936.....	944	280	420	244	230	44	186	74
1937.....	864	314	358	192	234	45	189	76
1938.....	1,023	316	458	249	231	45	186	76
1939.....	947	288	429	230	228	45	183	78
1940.....	902	308	390	204	222	44	178	80
1941.....	893	315	368	210	223	45	178	87
1942.....	806	291	314	201	220	44	176	90
1943.....	783	288	294	201	212	42	170	97
1944.....	841	328	318	195	216	43	173	104
1945.....	922	364	348	210	229	46	183	119
1946.....	933	329	377	227	279	56	223	157
1947.....	1,074	378	427	269	324	62	262	202
1948.....	1,242	468	477	297	373	69	304	230
1949.....	1,369	492	515	352	401	76	325	233
1950.....	1,423	506	564	353	425	83	342	235
1951.....	1,531	568	588	375	442	87	355	261
1952.....	1,611	616	604	391	486	93	393	276
1953.....	1,701	626	643	432	499	95	404	279
1954.....	1,780	662	665	453	515	99	416	284

<sup>1</sup> Included in "State," 1915-20.

### NEW PUBLIC CONSTRUCTION BY SOURCE AND TYPE OF FUNDS

Table 5 shows data by source and type of funds only, but a Federal-non-Federal break can be obtained very easily for either source of funds or ownership. For source of funds, combine the "Direct" and "Federal aid" columns to obtain total "Federal" and the "State and Local" column stands as it is. For ownership, combine the "Federal aid" and "State and Local" columns and the "Direct Federal" column stands as it is. Federal aid work has been invariably on State or locally-owned projects, except in the case of hospitals where it is granted for projects owned by private non-profit institutions as well.

Military facilities construction is the only major class that is strictly Federal among the various principal types of public construction. In recent years conservation and development has included only that work carried on by the Federal Government while the expenditures of State and local agencies which participated in this type of construction has been reported as "Miscellaneous Public Service Enterprises" or "All Other Public."

At one time or another, the Federal Government has been involved in practically all types of public construction projects which are usually considered to be purely State and local. Federal construction of housing began with such projects as the "Greenbelt Towns" and continued through the "Defense Housing Program." Housing for Atomic Energy projects accounts for recent direct Federal residential building. Federal aid to residential building arose in postwar years with conversion of war structures to housing for student veterans and their families.

Federal aid to nonresidential building arose through work relief projects, but now is largely in the National Hospital Program and the Federal School Construction Program. The Federal Government constructed some sewage disposal and water supply facilities in connection with its "Greenbelt" and "Defense Housing" projects, and extended aid to this class of construction through work relief projects, and in recent years through defense connected projects. Work Relief also brought the Federal Government into the "Miscellaneous Public Service Enterprises" field, where its participation currently is through the Federal Airport Program.

**New Public Construction, By  
Sources and Type of Funds, 1925-1954**

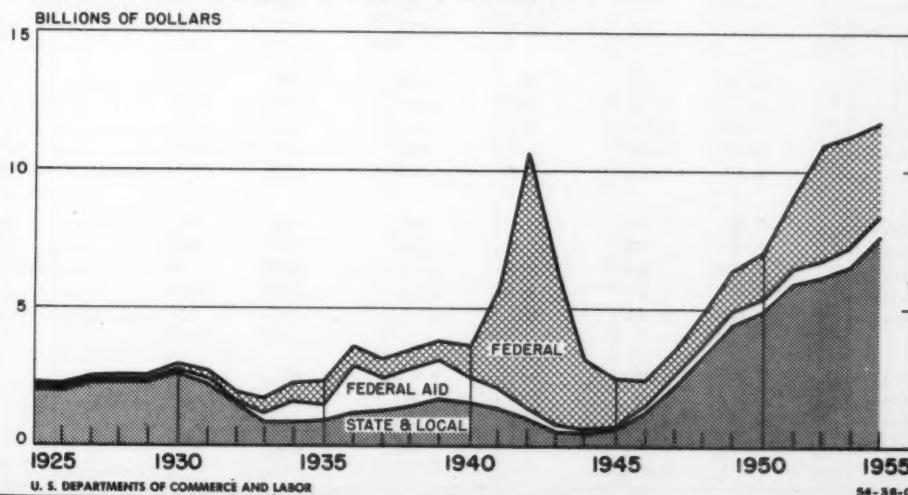


Table 5.—NEW PUBLIC CONSTRUCTION BY SOURCE AND TYPE OF FUNDS, 1915-54<sup>1</sup>

[Millions of dollars]

Year	Total public construction				Residential building			
	All public sources	Federal		State and local	All public sources	Federal		State and local
		Direct	Federal aid			Direct	Federal aid	
1915.....	719	71	.....	648	.....	.....	.....	.....
1916.....	708	66	.....	642	.....	.....	.....	.....
1917.....	1,279	654	5	620	.....	.....	.....	.....
1918.....	2,238	1,634	10	594	28	28	.....	.....
1919.....	1,976	1,162	65	749	14	14	.....	.....
1920.....	1,352	232	95	1,025	.....	.....	.....	.....
1921.....	1,564	122	78	1,364	.....	.....	.....	.....
1922.....	1,684	100	78	1,506	.....	.....	.....	.....
1923.....	1,622	108	77	1,437	.....	.....	.....	.....
1924.....	1,901	111	100	1,690	.....	.....	.....	.....
1925.....	2,138	100	89	1,949	.....	.....	.....	.....
1926.....	2,144	92	82	1,970	.....	.....	.....	.....
1927.....	2,409	98	81	2,230	.....	.....	.....	.....
1928.....	2,485	122	85	2,278	.....	.....	.....	.....
1929.....	2,486	155	80	2,251	.....	.....	.....	.....
1930.....	2,858	209	104	2,545	.....	.....	.....	.....
1931.....	2,659	271	235	2,153	.....	.....	.....	.....
1932.....	1,862	333	111	1,418	.....	.....	.....	.....
1933.....	1,648	516	286	846	.....	.....	.....	.....
1934.....	2,211	626	721	864	1	1	.....	.....
1935.....	2,233	814	567	852	9	9	.....	.....
1936.....	3,516	797	1,566	1,153	61	61	.....	.....
1937.....	3,096	776	1,117	1,203	93	93	.....	.....
1938.....	3,420	717	1,320	1,383	35	32	.....	3
1939.....	3,809	759	1,377	1,673	65	4	.....	61
1940.....	3,628	1,182	946	1,500	200	4	.....	196
1941.....	5,751	3,751	697	1,303	430	215	.....	215
1942.....	10,660	9,313	475	872	545	363	.....	182
1943.....	6,322	5,609	268	445	739	694	.....	45
1944.....	3,073	2,505	126	442	211	203	.....	8
1945.....	2,398	1,737	99	562	80	80	.....	.....
1946.....	2,362	870	244	1,248	374	248	61	65
1947.....	3,433	840	409	2,184	200	9	111	80
1948.....	4,825	1,177	417	3,231	156	33	10	113
1949.....	6,405	1,488	461	4,456	359	33	.....	326
1950.....	7,000	1,625	465	4,910	345	15	.....	330
1951.....	9,418	2,982	479	5,957	595	10	.....	585
1952.....	10,901	4,186	619	6,096	654	16	.....	638
1953.....	11,394	4,151	700	6,543	556	21	.....	535
1954.....	11,809	3,445	709	7,655	336	5	.....	331

<sup>1</sup> See page 13 for a description of this series.

Table 5.—NEW PUBLIC CONSTRUCTION BY SOURCE AND TYPE OF FUNDS, 1915-54—Continued

[Millions of dollars]

Year	Nonresidential building				Highway			
	All public sources	Federal		State and local	All public sources	Federal		State and local
		Direct	Federal aid			Direct	Federal aid	
1915.....	217	17	.....	200	302	.....	.....	302
1916.....	207	16	.....	191	314	.....	.....	314
1917.....	192	18	.....	174	320	.....	5	315
1918.....	199	20	.....	179	296	1	10	285
1919.....	246	16	.....	230	429	3	65	361
1920.....	283	11	.....	272	656	4	95	557
1921.....	387	17	.....	370	853	3	78	772
1922.....	481	21	.....	460	876	4	78	794
1923.....	481	18	.....	463	805	7	77	721
1924.....	494	13	.....	481	987	9	100	878
1925.....	573	8	.....	565	1,082	10	89	983
1926.....	603	8	.....	595	1,067	10	82	975
1927.....	596	10	.....	586	1,222	10	81	1,131
1928.....	638	14	.....	624	1,289	11	85	1,193
1929.....	659	26	.....	633	1,266	11	80	1,175
1930.....	660	43	.....	617	1,516	17	104	1,395
1931.....	612	65	.....	547	1,355	22	235	1,098
1932.....	415	133	.....	282	958	21	111	826
1933.....	230	94	9	127	847	44	232	571
1934.....	363	64	61	238	1,000	61	476	463
1935.....	328	59	72	197	845	64	326	455
1936.....	701	76	314	311	1,362	53	766	543
1937.....	550	82	239	235	1,226	42	538	646
1938.....	672	85	213	374	1,421	37	716	668
1939.....	970	80	367	523	1,381	35	603	743
1940.....	615	233	172	210	1,302	30	513	759
1941.....	1,646	1,357	97	192	1,066	26	391	649
1942.....	3,685	3,500	69	116	734	17	278	439
1943.....	2,010	1,909	32	69	446	7	192	247
1944.....	1,361	1,271	28	62	362	7	84	271
1945.....	937	808	29	100	398	11	59	328
1946.....	354	156	.....	198	895	26	180	689
1947.....	599	191	.....	408	1,451	34	296	1,121
1948.....	1,301	313	2	986	1,774	39	385	1,350
1949.....	2,068	463	25	1,580	2,131	57	406	1,668
1950.....	2,384	499	42	1,843	2,272	46	397	1,829
1951.....	3,497	1,183	57	2,257	2,518	42	397	2,079
1952.....	4,136	1,871	103	2,162	2,820	50	494	2,276
1953.....	4,346	1,928	172	2,246	3,160	58	507	2,595
1954.....	4,641	1,641	110	2,890	3,750	55	587	3,108



Table 5.—NEW PUBLIC CONSTRUCTION BY SOURCE AND TYPE OF FUNDS, 1915-54—Continued

[Millions of dollars]

Year	Sewage disposal and water supply				Conservation and development			
	All public sources	Federal		State and local	All public sources	Federal		State and local
		Direct	Federal aid			Direct	Federal aid	
1915.....	106	.....	.....	106	36	36	.....	.....
1916.....	95	.....	.....	95	28	28	.....	.....
1917.....	91	.....	.....	91	27	27	.....	.....
1918.....	94	.....	.....	94	29	29	.....	.....
1919.....	124	.....	.....	124	39	39	.....	.....
1920.....	153	.....	.....	153	55	55	.....	.....
1921.....	178	.....	.....	178	52	52	.....	.....
1922.....	201	.....	.....	201	48	48	.....	.....
1923.....	203	.....	.....	203	65	65	.....	.....
1924.....	263	.....	.....	263	79	79	.....	.....
1925.....	278	.....	.....	278	73	73	.....	.....
1926.....	285	.....	.....	285	61	61	.....	.....
1927.....	312	.....	.....	312	63	63	.....	.....
1928.....	300	.....	.....	300	72	72	.....	.....
1929.....	253	.....	.....	253	115	86	.....	29
1930.....	343	.....	.....	343	137	111	.....	26
1931.....	270	.....	.....	270	156	135	.....	21
1932.....	156	.....	.....	156	150	139	.....	11
1933.....	95	.....	14	81	359	338	16	5
1934.....	173	.....	69	104	518	445	62	11
1935.....	175	.....	63	112	700	637	45	18
1936.....	342	2	209	131	658	569	50	39
1937.....	311	2	158	151	605	510	39	56
1938.....	355	2	174	179	551	484	30	37
1939.....	371	.....	195	176	570	495	35	40
1940.....	338	.....	129	209	528	495	21	12
1941.....	252	.....	84	168	500	488	7	5
1942.....	169	17	57	95	357	350	4	3
1943.....	107	29	37	41	285	285	.....	.....
1944.....	79	10	14	55	163	163	.....	.....
1945.....	97	7	11	79	130	130	.....	.....
1946.....	194	2	3	189	240	240	.....	.....
1947.....	351	.....	.....	351	394	394	.....	.....
1948.....	535	.....	.....	535	629	629	.....	.....
1949.....	619	.....	.....	619	793	793	.....	.....
1950.....	659	.....	.....	659	881	881	.....	.....
1951.....	775	.....	.....	775	853	853	.....	.....
1952.....	790	.....	.....	790	854	854	.....	.....
1953.....	883	.....	9	874	830	830	.....	.....
1954.....	982	.....	8	974	704	704	.....	.....

Table 5.—NEW PUBLIC CONSTRUCTION BY SOURCE AND TYPE OF FUNDS, 1915-54—Continued

[Millions of dollars]

Year	Military facilities— all direct federal	Miscellaneous public service enterprises			All other public			
		All public sources	Federal aid	State and local	All public sources	Federal		State and local
						Direct	Federal aid	
1915.....	17	40	.....	40	1	1	.....	.....
1916.....	21	42	.....	42	1	1	.....	.....
1917.....	608	40	.....	40	1	1	.....	.....
1918.....	1,555	36	.....	36	1	1	.....	.....
1919.....	1,089	34	.....	34	1	1	.....	.....
1920.....	161	39	.....	39	5	1	.....	4
1921.....	49	41	.....	41	4	1	.....	3
1922.....	25	47	.....	47	6	2	.....	4
1923.....	16	45	.....	45	7	2	.....	5
1924.....	9	65	.....	65	4	1	.....	3
1925.....	8	120	.....	120	4	1	.....	3
1926.....	11	111	.....	111	6	2	.....	4
1927.....	12	192	.....	192	12	3	.....	9
1928.....	15	157	.....	157	14	10	.....	4
1929.....	19	151	.....	151	23	13	.....	10
1930.....	29	157	.....	157	16	9	.....	7
1931.....	40	209	.....	209	17	9	.....	8
1932.....	34	135	.....	135	14	6	.....	8
1933.....	36	65	5	60	16	4	10	2
1934.....	47	55	15	40	54	8	38	8
1935.....	37	71	13	58	68	8	48	12
1936.....	29	167	58	109	196	7	169	20
1937.....	37	134	39	95	140	10	110	20
1938.....	62	137	50	87	187	15	137	35
1939.....	125	136	51	85	191	20	126	45
1940.....	385	131	41	90	129	35	70	24
1941.....	1,620	141	78	63	96	45	40	11
1942.....	5,016	85	49	36	69	50	18	1
1943.....	2,550	49	6	43	136	135	1	.....
1944.....	837	46	.....	46	14	14	.....	.....
1945.....	690	55	.....	55	11	11	.....	.....
1946.....	188	99	.....	99	18	10	.....	8
1947.....	204	164	2	162	70	8	.....	62
1948.....	158	185	20	165	87	5	.....	82
1949.....	137	203	30	173	95	5	.....	90
1950.....	177	185	26	159	97	7	.....	90
1951.....	887	213	25	188	80	7	.....	73
1952.....	1,388	193	22	171	66	7	.....	59
1953.....	1,307	200	12	188	112	7	.....	105
1954.....	1,030	218	4	214	148	10	.....	138

Table 6.—NEW CONSTRUCTION, BY MONTHS, 1949-54

[Millions of dollars]

Type of construction	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1949													
Total new construction....	1,534	1,418	1,514	1,644	1,879	2,047	2,134	2,212	2,236	2,203	2,074	1,894	22,789
Private, total.....	1,176	1,087	1,131	1,194	1,324	1,437	1,499	1,530	1,534	1,531	1,508	1,433	16,384
Residential (excluding farm).....	560	482	502	547	637	712	756	781	810	834	840	806	8,267
New dwelling units.....	492	420	435	465	544	614	658	688	716	742	753	730	7,257
Additions and alterations.....	54	49	53	67	76	81	81	77	78	76	72	61	825
Nonhousekeeping.....	14	13	14	15	17	17	17	16	16	16	15	15	185
Nonresidential building.....	290	274	266	257	262	272	273	271	262	264	270	267	3,228
Industrial.....	110	104	96	89	81	76	72	71	69	68	68	68	972
Office buildings and warehouses	32	29	28	25	26	26	26	27	23	24	27	28	321
Stores, restaurants & garages...	53	51	53	53	60	68	67	62	60	60	61	58	706
Other nonresidential building...	95	90	89	90	95	102	108	111	110	112	114	113	1,229
Religious.....	28	26	26	26	28	30	31	33	33	33	34	32	360
Educational.....	23	22	21	21	20	21	23	23	23	24	24	24	269
Hospital and institutional...	11	11	12	13	14	16	17	19	20	22	23	24	202
Social and recreational.....	21	21	20	20	22	23	24	24	23	22	21	21	262
Miscellaneous.....	12	10	10	10	11	12	13	12	11	11	12	12	136
Farm construction.....	95	97	104	115	133	145	154	159	149	127	110	100	1,488
Operators' dwellings.....	44	45	48	54	63	69	73	75	70	59	50	45	695
Service buildings.....	51	52	56	61	70	76	81	84	79	68	60	55	793
Public utility.....	227	229	254	269	286	300	308	311	306	299	281	253	3,323
Railroad.....	26	25	28	32	33	32	33	32	30	29	29	23	352
Telephone and telegraph.....	42	47	54	48	49	50	43	43	40	40	40	37	533
Other public utility.....	159	157	172	189	204	218	232	236	236	230	212	193	2,438
All other private.....	4	5	5	6	6	8	8	8	7	7	7	7	78
Public, total.....	358	331	383	450	555	610	635	682	702	672	566	461	6,405
Residential building.....	16	17	22	26	25	33	32	37	40	41	36	34	368
Nonresidential building.....	139	135	153	158	167	173	176	188	220	217	182	160	2,068
Industrial.....	21	20	21	17	17	16	12	11	11	11	11	9	177
Educational.....	66	65	68	72	76	80	83	87	90	85	82	80	934
Hospital and institutional.....	28	27	34	36	39	42	44	47	48	48	44	40	477
Other nonresidential building...	24	23	30	33	35	35	37	43	71	73	45	31	480
Military facilities.....	8	8	8	9	9	11	12	15	15	16	14	12	137
Highway.....	89	68	84	128	206	236	255	276	255	233	184	117	2,131
Sewer and water.....	46	45	49	51	53	53	54	55	57	56	51	49	619
Misc. public service enterprises...	10	11	12	13	18	18	22	23	25	22	16	13	203
Conservation and development.....	43	41	47	58	70	78	76	79	80	79	74	68	790
All other public.....	7	6	8	7	7	8	8	9	10	8	9	8	95
1950													
Total new construction....	1,755	1,658	1,813	2,044	2,323	2,612	2,760	2,871	2,901	2,818	2,613	2,286	28,454
Private, total.....	1,333	1,299	1,372	1,533	1,752	1,956	2,084	2,157	2,160	2,083	1,952	1,773	21,494
Residential (excluding farm).....	744	714	758	881	1,036	1,178	1,269	1,322	1,322	1,247	1,131	1,008	12,600
New dwelling units.....	682	652	687	799	941	1,072	1,161	1,212	1,211	1,145	1,040	923	11,525
Additions and alterations.....	51	51	55	70	82	92	93	93	94	84	73	62	900
Nonhousekeeping.....	11	11	11	12	13	14	15	17	17	18	18	18	175
Nonresidential building.....	257	252	249	249	274	305	324	333	354	382	403	395	3,777
Industrial.....	69	70	69	70	73	78	84	91	101	112	120	125	1,062
Office buildings and ware-													
houses.....	28	27	25	25	26	28	31	35	39	43	47	48	402
Stores, restaurants and													
garages.....	51	50	52	52	66	82	85	79	82	99	102	92	886
Other nonresidential building...	109	105	103	102	109	117	124	128	132	134	134	130	1,427
Religious.....	31	29	28	28	30	33	35	37	39	40	40	39	409
Educational.....	23	22	21	20	21	22	24	26	28	29	29	29	294
Hospital & institutional.....	25	26	27	27	29	30	30	30	30	30	30	30	344
Social and recreational.....	20	18	17	17	19	21	23	24	23	23	22	20	247
Miscellaneous.....	10	10	10	10	10	11	12	11	12	12	13	12	133
Farm construction.....	100	104	114	128	149	163	174	178	165	138	118	104	1,635
Operators' dwellings.....	45	47	52	59	70	77	83	85	78	64	55	48	783
Service buildings.....	55	57	62	69	79	86	91	93	87	74	63	56	872

Table 6.—NEW CONSTRUCTION, BY MONTHS, 1949-54—Continued

[Millions of dollars]

Type of construction	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1950—Continued													
Private—Continued													
Public utilities.....	223	220	247	264	280	297	306	313	312	309	293	266	3,330
Railroad.....	23	16	22	24	25	26	28	29	29	32	32	28	315
Telephone and telegraph...	29	31	38	34	39	39	39	40	39	39	38	35	440
Other public utility.....	171	173	187	206	215	232	239	244	244	238	223	203	2,575
All other private.....	9	9	9	11	13	13	11	11	7	7	7	5	112
Public, total.....	422	359	441	511	571	656	676	714	741	735	661	513	7,000
Residential building.....	35	28	29	28	27	28	24	27	28	30	31	30	345
Nonresidential building.....	156	153	169	182	200	198	200	210	227	244	227	218	2,384
Industrial.....	7	7	12	13	17	17	18	19	23	31	29	31	224
Educational.....	80	79	83	85	88	90	93	98	104	112	111	110	1,133
Hospital & institutional...	38	37	39	41	43	42	43	45	44	43	42	39	496
Other nonresidential building.....	31	30	35	43	52	49	46	48	56	56	45	38	531
Military facilities.....	10	8	8	9	8	9	10	16	21	28	26	24	177
Highway.....	97	60	106	149	178	253	273	286	292	260	218	100	2,272
Sewer and water.....	49	46	49	51	53	55	57	60	61	61	60	57	659
Miscellaneous public service enterprises.....	12	9	11	13	15	17	17	20	20	21	17	13	185
Conservation and development..	55	48	60	71	81	87	86	86	84	83	75	65	881
All other public.....	8	7	9	8	9	9	9	9	8	8	7	6	97
1951													
Total new construction	2,157	2,037	2,261	2,457	2,660	2,832	2,911	2,976	2,953	2,892	2,654	2,392	31,182
Private, total.....	1,632	1,565	1,658	1,742	1,840	1,941	1,979	1,986	1,972	1,925	1,834	1,690	21,764
Residential (excluding farm)..	902	827	862	895	918	957	965	956	958	963	930	840	10,973
New dwelling units.....	830	750	785	807	821	853	857	847	849	858	832	760	9,849
Additions and alterations..	55	60	61	72	81	88	91	92	93	91	84	66	934
Nonhousekeeping.....	17	17	16	16	16	16	17	17	16	14	14	14	190
Nonresidential building.....	378	384	399	410	440	465	471	465	460	440	425	415	5,152
Industrial.....	129	135	143	152	164	180	195	204	210	205	200	200	2,117
Office buildings and warehouses.....	47	46	45	46	48	48	48	48	45	41	41	41	544
Stores, restaurants and garages.....	75	75	82	80	83	83	73	60	56	54	55	51	827
Other nonresidential building.....	127	128	129	132	145	154	155	153	149	140	129	123	1,664
Religious.....	37	35	35	35	38	41	42	43	42	38	34	32	452
Educational.....	28	27	26	26	27	29	30	32	32	31	29	28	345
Hospital & institutional	30	31	32	34	37	38	39	38	37	36	34	33	419
Social and recreational	19	18	16	15	15	15	14	13	12	10	9	8	164
Miscellaneous.....	13	17	20	22	28	31	30	27	26	25	23	22	284
Farm construction.....	105	111	123	141	166	185	199	205	192	161	137	121	1,846
Operators' dwellings.....	49	52	57	66	78	86	93	96	90	75	64	57	863
Service buildings.....	56	59	66	75	88	99	106	109	102	86	73	64	983
Public utilities.....	242	238	269	291	312	329	339	354	356	355	336	308	3,729
Railroad.....	26	22	28	28	33	36	35	38	35	40	41	37	399
Telephone and telegraph...	36	35	41	39	41	42	41	43	43	44	42	40	487
Other public utility.....	180	181	200	224	238	251	263	273	278	271	253	231	2,843
All other private.....	5	5	5	5	4	5	5	6	6	6	6	6	64
Public, total.....	525	472	603	715	820	891	932	990	981	967	820	702	9,418
Residential building.....	29	30	36	42	45	47	47	56	63	66	68	66	595
Nonresidential building.....	229	220	259	287	300	311	319	329	325	319	304	295	3,497
Industrial.....	38	36	55	71	78	85	94	106	106	106	100	99	974
Educational.....	110	110	118	123	126	128	132	133	135	134	133	131	1,513
Hospital and institutional	40	38	45	47	51	50	47	47	44	43	39	37	528
Other nonresidential building.....	41	36	41	46	45	48	46	43	40	36	32	28	482
Military facilities.....	30	34	52	66	68	74	83	93	96	103	100	88	887
Highway.....	92	63	110	159	234	276	302	336	325	311	196	114	2,518
Sewer and water.....	62	59	64	67	69	72	71	68	66	64	59	54	775
Miscellaneous public service enterprises.....	13	11	15	16	20	22	22	23	22	20	15	14	213
Conservation and development..	63	49	61	70	76	81	80	78	77	78	73	67	853
All other public.....	7	6	6	8	8	8	8	7	7	6	5	4	80

Table 6.—NEW CONSTRUCTION, BY MONTHS, 1949-54—Continued  
[Millions of dollars]

Type of construction	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1952													
Total new construction	2,196	2,118	2,362	2,566	2,784	2,971	3,070	3,148	3,190	3,126	2,894	2,583	33,008
Private, total.....	1,535	1,484	1,638	1,716	1,844	1,957	2,023	2,060	2,055	2,029	1,953	1,813	22,107
Residential (excluding farm)..	719	676	799	849	927	993	1,028	1,047	1,045	1,051	1,024	942	11,100
New dwelling units.....	650	600	710	750	815	875	910	930	930	935	915	850	9,870
Additions and alterations..	56	63	77	87	99	103	101	99	97	98	91	74	1,045
Nonhousekeeping.....	13	13	12	12	13	15	17	18	18	18	18	18	185
Nonresidential building.....	423	413	402	390	395	405	414	421	434	441	443	433	5,014
Industrial.....	209	209	202	195	188	183	181	183	190	193	194	193	2,320
Office buildings and ware- houses.....	47	43	39	37	38	38	41	43	44	46	49	50	515
Stores, restaurants and garages.....	44	39	41	40	48	55	58	55	57	59	64	62	622
Other nonresidential build- ing.....	123	122	120	118	121	129	134	140	143	143	136	128	1,557
Religious.....	31	30	29	28	29	31	33	36	38	39	38	37	399
Educational.....	28	27	26	25	26	28	29	31	32	33	33	33	351
Hospital & institutional	32	32	32	33	34	35	36	35	34	33	30	28	394
Social and recreational	9	9	9	9	9	10	11	12	12	12	12	11	125
Miscellaneous.....	23	24	24	23	23	25	25	26	27	26	23	19	288
Farm construction.....	122	126	138	154	177	192	202	205	188	155	131	115	1,905
Operators' dwellings.....	57	59	64	72	83	90	94	96	88	72	61	54	890
Service buildings.....	65	67	74	82	94	102	108	109	100	83	70	61	1,015
Public utilities.....	265	264	294	317	338	359	370	379	381	375	347	314	4,008
Railroad.....	28	26	30	40	35	40	38	33	39	48	38	43	438
Telephone and telegraph...	41	43	45	44	49	50	51	50	51	53	48	45	570
Other public utility.....	196	195	219	233	254	269	281	296	291	274	261	226	2,986
All other private.....	6	5	5	6	7	8	9	8	7	7	8	9	85
Public, total.....	661	634	724	850	940	1,014	1,047	1,088	1,135	1,097	941	770	10,901
Residential building.....	63	59	55	55	56	53	54	56	54	51	49	49	654
Nonresidential building.....	287	276	301	325	340	368	371	391	392	383	366	346	4,136
Industrial.....	93	91	106	122	135	150	161	175	176	170	159	146	1,684
Educational.....	129	127	131	135	136	137	138	140	139	137	136	134	1,619
Hospital and institutional	37	35	38	41	41	42	41	43	41	40	38	36	473
Other nonresidential	28	23	26	27	28	29	31	33	36	36	33	30	360
building.....	89	84	101	114	119	125	128	134	134	128	121	111	1,388
Military facilities.....	85	90	123	203	262	308	321	334	376	359	244	115	2,820
Highway.....	56	54	60	64	69	71	73	72	71	70	66	64	790
Sewer and water.....	14	11	14	15	17	17	17	19	21	19	16	13	198
Miscellaneous public service	62	56	65	68	71	76	77	76	81	81	74	67	854
enterprises.....	5	4	5	6	6	6	6	6	6	6	5	5	66
Conservation and development..	5	4	5	6	6	6	6	6	6	6	5	5	66
All other public.....	5	4	5	6	6	6	6	6	6	6	5	5	66
1953													
Total new construction	2,396	2,323	2,563	2,789	2,959	3,228	3,326	3,346	3,358	3,240	3,028	2,715	35,271
Private, total.....	1,647	1,595	1,750	1,896	2,013	2,187	2,218	2,223	2,200	2,154	2,077	1,917	23,877
Residential (excluding farm)..	816	758	863	964	1,012	1,123	1,126	1,114	1,093	1,076	1,034	951	11,990
New dwelling units.....	735	675	770	850	885	990	990	980	965	950	915	850	10,555
Additions and alterations..	63	64	74	94	105	110	112	110	103	101	94	78	1,108
Nonhousekeeping.....	18	19	19	20	22	23	24	24	25	25	25	23	267
Nonresidential building.....	432	433	430	427	451	479	489	493	505	511	523	507	5,680
Industrial.....	201	204	198	192	191	185	176	174	177	177	177	177	2,229
Office buildings and ware- houses.....	51	50	49	50	53	56	60	66	71	75	79	79	739
Stores, restaurants, and garages.....	58	61	65	64	76	96	105	103	104	104	113	103	1,052
Other nonresidential	122	118	118	121	131	142	148	150	153	155	154	148	1,660
building.....	35	34	33	33	35	38	40	43	44	46	46	45	472
Religious.....	32	31	30	31	32	34	36	38	40	41	41	40	426
Educational.....	27	26	26	26	26	27	27	27	27	26	26	26	163
Hospital & institutional	11	10	10	11	13	14	15	15	15	16	17	16	317
Social and recreational	17	17	19	20	25	29	30	27	27	26	24	21	282
Miscellaneous.....	114	117	127	140	161	174	182	185	170	140	118	103	1,731
Farm construction.....	53	55	59	65	75	81	85	87	80	66	55	48	809
Operator's dwellings.....	61	62	68	75	86	93	97	98	90	74	63	55	922
Service buildings.....	61	62	68	75	86	93	97	98	90	74	63	55	922



Table 6.—NEW CONSTRUCTION, BY MONTHS, 1949-54—Continued

[Millions of dollars]

Type of construction	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1953—Continued													
Private—Continued													
Public utility.....	277	279	322	356	377	398	408	420	422	417	393	347	4,416
Railroad.....	29	27	35	39	36	38	39	39	41	42	41	36	442
Telephone and telegraph....	46	47	49	53	53	54	55	52	51	56	51	48	615
Other public utility.....	202	205	238	264	288	306	314	329	330	319	301	263	3,359
All other private.....	8	8	8	9	12	13	13	11	10	10	9	9	120
Public, total.....	749	728	813	893	946	1,041	1,108	1,123	1,158	1,086	951	798	11,394
Residential building.....	47	48	47	49	50	51	46	44	46	46	43	39	556
Nonresidential building.....	334	324	366	370	369	377	373	376	379	374	353	351	4,346
Industrial.....	138	132	165	159	158	162	153	150	147	140	131	136	1,771
Educational.....	131	131	133	138	139	140	145	146	151	156	153	151	1,714
Hospital & institutional...	34	33	34	35	33	33	30	30	28	27	24	24	365
Other nonresidential bldg..	31	28	34	38	39	42	45	50	53	51	45	40	496
Military facilities.....	107	108	111	111	113	122	122	120	118	101	96	78	1,307
Highway.....	118	116	138	195	240	309	379	393	423	383	290	176	3,160
Sewer and water.....	64	62	67	71	73	76	80	82	83	79	75	71	883
Miscellaneous public service enterprises.....	13	10	12	15	16	17	20	22	23	21	18	13	300
Conservation and development..	61	55	66	74	75	78	77	74	73	70	66	61	830
All other public.....	5	5	6	8	10	11	11	12	13	12	10	9	112
1954													
Total new construction	2,454	2,358	2,579	2,814	3,140	3,385	3,556	3,698	3,674	3,508	3,329	3,092	37,577
Private, total.....	1,706	1,632	1,773	1,923	2,116	22,273	2,387	2,457	2,460	2,420	2,358	2,263	25,768
Residential (excluding farm)..	816	758	863	980	1,107	1,193	1,267	1,313	1,327	1,321	1,293	1,258	13,496
New dwelling units.....	730	675	770	860	970	1,060	1,125	1,175	1,195	1,195	1,175	1,150	12,070
Additions and alterations...	63	61	71	96	111	114	113	110	107	102	96	86	1,130
Nonhousekeeping.....	23	22	22	24	26	29	29	28	25	24	22	22	296
Nonresidential building.....	486	474	469	466	490	530	551	556	558	554	544	552	6,250
Industrial.....	179	176	173	168	162	161	158	159	162	170	178	184	2,080
Office buildings and warehouses.....	75	73	70	69	72	76	81	88	88	89	90	87	958
Stores, restaurants, and garages.....	89	84	84	83	96	116	125	122	122	113	113	105	1,254
Other nonresidential bldg..	143	141	142	146	158	177	187	187	186	182	183	176	2,008
Religious.....	42	41	40	40	42	47	52	56	58	59	59	57	593
Educational.....	39	38	37	39	41	45	48	50	50	49	48	45	529
Hospital & institutional...	26	26	27	27	28	28	29	29	30	29	29	29	337
Social & recreational...	16	16	16	16	17	20	21	22	22	22	21	19	228
Miscellaneous.....	20	20	22	24	30	37	37	30	26	23	26	26	321
Farm construction.....	102	106	114	127	145	157	164	167	153	126	106	98	1,580
Operator's dwellings.....	48	50	53	59	68	73	77	78	71	59	50	43	729
Service buildings.....	54	56	61	68	77	84	87	89	82	67	56	50	881
Public utility.....	295	287	320	342	365	382	393	408	410	407	383	348	4,341
Railroad.....	27	25	30	32	30	31	30	26	28	38	28	28	353
Telephone and telegraph....	46	48	54	56	58	58	58	58	57	56	55	51	655
Other public utility.....	222	214	236	254	277	293	305	325	325	313	300	269	3,333
All other private.....	7	7	7	8	9	11	12	12	12	12	12	12	121
Public, total.....	748	726	806	891	1,024	1,112	1,169	1,236	1,214	1,083	971	829	11,809
Residential building.....	37	34	34	34	31	26	24	25	24	23	22	22	336
Nonresidential building.....	359	353	371	383	394	407	420	437	410	390	366	351	4,641
Industrial.....	146	142	142	138	132	129	130	130	106	105	104	102	1,506
Educational.....	152	153	161	168	177	183	189	195	197	193	185	181	2,134
Hospital & institutional...	24	24	28	32	34	35	34	37	33	31	28	25	365
Other nonresidential bldg..	37	34	40	45	51	60	67	75	74	61	49	43	636
Military facilities.....	73	68	74	78	78	90	90	97	98	101	95	88	1,080
Highway.....	137	135	173	229	342	400	440	479	492	389	320	214	3,750
Sewer and water.....	70	69	76	79	81	85	89	94	91	88	83	77	982
Miscellaneous public service enterprises.....	13	12	14	15	19	22	25	25	23	19	16	15	218
Conservation and development..	49	45	52	60	65	68	67	64	63	61	58	52	704
All other public.....	10	10	12	13	14	14	14	15	13	12	11	10	148

Construction activity is highly dependent upon favorable seasonal factors. Some progress has been made in overcoming seasonal influences through the development of such equipment as crawler-type tractors and through improved scheduling of work, but seasonal trends still are clearly discernable in all types of construction activity.

Interpretation of current monthly trends in construction activity is facilitated by the elimination of purely seasonal influences. Unfortunately, the period for which monthly data are available (1939 to date) is one in which seasonal trends have been disturbed markedly by the abnormal influences of defense and war construction and by materials supply difficulties and periodic uncertainties in the general economic outlook since World War II. Thus, the seasonal indexes which have been developed from data for this period will require further refinement as data for a longer, more nearly normal period become available.

The seasonal indexes shown in table 7 were computed by use of the ratio-to-moving average method. In order to arrive at a typical ratio for each month, the highest and lowest ratio values obtained for each of the 12 calendar months were excluded in averaging the ratios of the actual monthly figures to the 12-month moving average.

For individual types of construction, seasonally adjusted values have been derived by dividing the unadjusted estimates by corresponding seasonal indexes. Seasonally-adjusted series for total new construction, total private construction, and total public construction have been obtained by adding the seasonally adjusted figures for the various components. No seasonal adjustment was made for military facilities during the period 1939-46.

Table 7.—SEASONAL INDEXES FOR SELECTED TYPES OF NEW CONSTRUCTION ACTIVITY

[Average for year = 100]

Type of construction and base period	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<i>Private</i>												
Residential building (1939-50).....	86	75	79	89	102	111	114	116	115	111	106	96
Residential building (1951-54).....	84	78	88	95	101	109	111	111	110	110	106	97
Industrial building (1939-46).....	105	100	95	92	94	96	96	97	102	107	108	108
Industrial building (1947-54).....	103	102	95	98	96	96	97	99	102	103	103	102
Office buildings and warehouses (1939-46)...	94	88	90	94	95	101	109	109	109	106	106	99
Office buildings and warehouses (1947-54)...	105	99	93	91	92	94	99	103	103	104	108	109
Stores, restaurants and garages (1939-46)...	82	81	86	89	100	117	122	112	108	104	102	97
Stores, restaurants and garages (1947-54)...	88	84	86	84	97	114	117	107	106	106	110	101
Other nonresidential building (1939-54)....	97	92	91	88	92	103	105	109	110	109	103	101
Farm construction (1939-54).....	75	78	85	95	110	120	127	130	120	100	85	75
Public utility (1939-54).....	82	80	89	95	101	106	109	113	113	112	105	96
All other private (1939-46).....	78	86	91	100	100	117	122	114	109	100	96	87
All other private (1947-54).....	84	86	87	97	109	124	125	114	99	95	94	86
<i>Public</i>												
Residential building (1939-54).....	90	89	94	96	102	104	104	111	110	105	99	96
Nonresidential building (1939-54).....	88	84	94	100	103	105	112	113	110	107	95	89
Military facilities (1947-54).....	84	76	88	94	96	103	109	118	120	116	105	91
Highway (1939-46).....	51	48	59	81	103	122	136	142	141	134	107	76
Highway (1947-51).....	50	37	52	76	106	132	142	150	147	141	106	61
Highway (1952-54).....	45	44	56	80	106	126	141	149	155	145	99	54
Sewer and water (1939-54).....	84	77	87	96	103	109	120	118	112	109	96	89
Public service enterprises (1939-54).....	75	65	83	90	109	125	132	132	119	108	87	75
Conservation and development (1939-54)....	82	75	83	89	96	106	112	116	119	118	110	94
All other public (1939-46).....	81	67	93	98	106	112	118	120	118	109	97	81
All other public (1947-54).....	86	77	96	102	109	114	114	114	115	103	92	78

Table 8.—NEW CONSTRUCTION, BY MONTHS, SEASONALLY ADJUSTED, 1949-54

[Millions of dollars]

Type of construction	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1949													
Total new construction.....	1,849	1,864	1,830	1,813	1,850	1,848	1,854	1,877	1,926	1,970	2,021	2,087	22,789
Private, total.....	1,357	1,351	1,337	1,310	1,312	1,317	1,336	1,338	1,356	1,402	1,456	1,512	16,384
Residential (excluding farm).....	654	646	638	617	627	644	666	676	707	754	795	843	8,267
Nonresidential building.....	295	289	286	284	277	265	260	258	247	248	257	262	3,228
Industrial.....	107	101	97	91	94	79	74	72	68	66	66	67	972
Office buildings and ware-													
houses.....	30	29	30	28	26	28	26	26	22	23	25	26	321
Stores, restaurants and garages	60	61	61	63	62	59	57	58	57	56	55	57	706
Other nonresidential building..	98	98	98	102	103	99	103	102	100	103	111	112	1,229
Farm construction.....	126	124	122	121	120	120	121	122	124	126	129	133	1,488
Public utility.....	277	286	285	282	282	282	282	275	271	267	268	266	3,323
All other private.....	5	6	6	6	6	6	7	7	7	7	7	8	78
Public, total.....	492	513	493	503	538	531	518	539	570	568	565	575	6,405
Residential.....	18	19	24	27	25	32	31	34	37	39	37	36	359
Nonresidential building.....	158	161	163	158	163	165	158	167	200	203	192	180	2,068
Military facilities.....	10	11	9	10	9	10	11	13	13	14	14	13	137
Highway.....	178	184	161	168	194	179	180	184	173	165	173	192	2,131
Sewer and water.....	54	58	56	53	51	48	45	46	50	51	53	54	619
Miscellaneous public service en-													
terprises.....	14	17	15	15	16	15	17	18	21	20	18	17	203
Conservation and development.....	52	55	57	65	74	75	69	69	68	68	68	73	793
All other public.....	8	8	8	7	6	7	7	8	8	8	10	10	95
1950													
Total new construction.....	2,129	2,184	2,232	2,277	2,301	2,369	2,411	2,458	2,516	2,536	2,548	2,493	28,454
Private, total.....	1,555	1,651	1,656	1,703	1,745	1,797	1,862	1,894	1,917	1,918	1,888	1,868	21,454
Residential (excluding farm).....	874	962	963	1,000	1,026	1,072	1,124	1,151	1,161	1,134	1,078	1,055	12,600
Nonresidential building.....	265	270	271	279	293	298	311	319	335	363	385	388	3,777
Industrial.....	67	69	70	72	76	81	87	92	99	109	117	123	1,062
Office buildings and ware-													
houses.....	27	27	27	28	29	30	32	34	38	42	44	44	402
Stores, restaurants and garages	58	60	61	63	69	73	74	75	78	89	94	92	886
Other nonresidential building..	113	114	113	116	119	114	118	118	120	123	130	129	1,427
Farm construction.....	133	133	134	135	136	136	137	137	138	138	139	139	1,635
Public utility.....	272	275	278	278	278	280	281	277	276	276	279	280	3,330
All other private.....	11	11	10	11	12	11	9	10	7	7	7	6	112
Public, total.....	574	533	576	574	556	572	549	564	599	618	660	625	7,000
Residential.....	39	31	31	29	26	27	23	24	25	28	31	31	345
Nonresidential building.....	177	182	179	182	194	188	178	186	206	228	239	245	2,384
Military facilities.....	12	11	9	10	9	9	9	14	18	24	25	27	177
Highway.....	196	163	206	198	169	194	194	193	201	185	208	165	2,272
Sewer and water.....	58	59	56	53	51	50	47	50	54	55	62	64	659
Miscellaneous public service													
enterprises.....	16	14	13	14	14	14	13	15	17	19	19	17	185
Conservation and development.....	67	64	73	80	85	82	77	74	71	71	68	69	881
All other public.....	9	9	9	8	8	8	8	8	7	8	8	7	97

Table 8.—NEW CONSTRUCTION, BY MONTHS, SEASONALLY ADJUSTED, 1949-54—Continued

[Millions of dollars]

Type of construction	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1951													
Total new construction.....	2,555	2,563	2,612	2,640	2,641	2,601	2,578	2,585	2,597	2,602	2,597	2,611	31,182
Private, total.....	1,661	1,881	1,851	1,851	1,836	1,806	1,798	1,784	1,788	1,774	1,771	1,763	21,764
Residential (excluding farm).....	1,034	1,030	970	941	908	877	868	860	870	874	876	865	10,973
Nonresidential building.....	384	404	426	449	464	459	457	447	436	416	406	404	5,152
Industrial.....	125	132	144	155	171	188	201	206	206	199	194	196	2,117
Office buildings and ware- houses.....	45	46	48	51	52	51	48	46	43	39	38	37	544
Stores, restaurants and garages	83	87	93	93	84	71	61	55	52	50	49	49	827
Other nonresidential building..	131	139	141	150	157	149	147	140	135	128	125	122	1,664
Farm construction.....	141	143	146	149	152	155	157	158	160	161	162	162	1,846
Public utility.....	296	298	303	307	309	311	312	314	316	317	321	325	3,723
All other private.....	6	6	6	5	3	4	4	5	6	6	6	7	64
Public, total.....	694	682	761	789	805	795	780	801	809	828	826	848	9,418
Residential.....	32	34	38	44	44	45	45	51	58	64	70	70	595
Nonresidential building.....	260	262	276	287	292	297	286	292	296	298	320	331	3,497
Military facilities.....	37	46	60	71	72	73	78	81	82	91	97	99	887
Highway.....	189	174	217	214	227	214	218	230	227	226	190	192	2,518
Sewer and water.....	74	76	73	69	66	65	58	57	58	58	60	61	775
Miscellaneous public service enterprises.....	17	17	18	18	18	18	17	17	18	19	17	19	213
Conservation and development.....	77	65	73	78	79	76	71	67	64	66	66	71	853
All other public.....	8	8	6	8	7	7	7	6	6	6	6	5	80
1952													
Total new construction.....	2,635	2,673	2,720	2,748	2,764	2,741	2,723	2,739	2,786	2,797	2,845	2,837	33,008
Private, total.....	1,774	1,792	1,833	1,820	1,842	1,825	1,843	1,856	1,870	1,874	1,887	1,891	22,107
Residential (excluding farm).....	856	868	909	896	921	915	931	948	955	959	969	973	11,100
Nonresidential building.....	425	426	426	422	419	404	406	407	413	418	424	424	5,014
Industrial.....	203	205	204	199	196	191	187	185	186	187	188	189	2,320
Office buildings and ware- houses.....	45	43	42	41	42	40	41	42	43	44	46	46	515
Stores, restaurants and garages	50	46	48	48	50	48	50	52	54	56	58	62	622
Other nonresidential building..	127	132	132	134	131	125	128	128	130	131	132	127	1,557
Farm construction.....	162	162	162	162	161	160	159	158	157	155	154	153	1,905
Public utility.....	324	330	330	334	335	339	340	336	338	335	331	331	4,003
All other private.....	7	6	6	6	6	7	7	7	7	7	9	10	85
Public, total.....	861	881	887	928	922	916	880	883	916	923	958	946	10,901
Residential.....	70	66	58	57	54	50	52	50	49	48	49	51	654
Nonresidential building.....	326	329	320	325	330	341	331	346	356	358	385	389	4,136
Military facilities.....	106	111	115	121	124	121	117	114	112	110	115	122	1,388
Highway.....	193	209	225	260	252	249	233	229	248	253	251	218	2,820
Sewer and water.....	67	70	69	67	67	65	61	60	62	63	68	71	790
Miscellaneous public service enterprises.....	18	17	17	16	15	14	13	14	17	17	18	17	193
Conservation and development.....	75	74	78	76	74	71	68	65	67	68	67	71	854
All other public.....	6	5	5	6	6	5	5	5	5	6	5	7	66

Table 8.—NEW CONSTRUCTION, BY MONTHS, SEASONALLY ADJUSTED, 1949-54—Continued

[Millions of dollars]

Total	Type of construction	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
		1953												
31,182	Total new construction.....	2,898	2,951	2,945	2,973	2,931	2,972	2,928	2,902	2,917	2,889	2,962	3,003	35,271
21,794	Private, total.....	1,911	1,937	1,963	2,015	2,013	2,038	2,016	2,006	2,000	1,988	2,000	1,990	23,877
10,973	Residential (excluding farm).....	973	974	982	1,016	1,003	1,031	1,015	1,005	995	979	976	981	11,930
5,152	Nonresidential building.....	437	454	460	466	479	475	473	476	480	485	500	495	5,680
2,117	Industrial.....	195	200	200	196	199	192	181	176	173	172	172	173	2,229
544	Office buildings and ware-													
827	houses.....	49	51	53	55	58	60	61	64	69	72	74	73	739
1,664	Stores, restaurants and garages	67	74	77	77	79	85	90	98	99	99	104	103	1,052
1,846	Other nonresidential building..	126	129	130	138	143	138	141	138	139	142	150	146	1,660
3,729	Farm construction.....	152	150	149	147	146	145	143	142	141	140	139	137	1,731
64	Public utility.....	339	350	363	377	374	377	375	373	374	373	375	366	4,416
9,418	All other private.....	10	9	9	9	11	10	10	10	10	11	10	11	120
595	Public, total.....	967	1,014	982	958	918	934	912	896	917	901	962	1,013	11,394
3,497	Residential.....	52	54	50	51	49	49	44	39	42	43	43	40	556
867	Nonresidential building.....	378	394	387	368	356	357	331	333	343	348	370	391	4,346
2,518	Military facilities.....	125	140	124	116	116	116	110	101	97	86	90	86	1,307
775	Highway.....	261	263	245	243	225	244	267	263	271	263	291	324	3,160
213	Sewer and water.....	75	80	76	73	71	70	67	69	74	72	77	79	883
853	Miscellaneous public service													
80	enterprises.....	17	15	14	17	15	14	15	17	19	19	21	17	200
	Conservation and development.....	73	72	80	82	77	74	68	63	60	58	59	64	830
	All other public.....	6	6	6	8	9	10	10	11	11	12	11	12	112
		1954												
3,008	Total new construction.....	2,983	3,011	2,995	3,016	3,114	3,108	3,133	3,199	3,199	3,136	3,254	3,429	37,577
2,107	Private, total.....	1,976	1,982	1,996	2,053	2,126	2,125	2,180	2,226	2,247	2,238	2,269	2,350	25,768
1,100	Residential (excluding farm).....	978	980	989	1,040	1,104	1,102	1,150	1,192	1,215	1,210	1,229	1,307	13,496
5,014	Nonresidential building.....	494	500	505	512	521	523	530	534	530	525	537	539	6,250
2,320	Industrial.....	174	172	175	171	169	168	163	161	159	165	173	180	2,030
515	Office buildings and ware-													
622	houses.....	71	74	75	76	78	81	82	86	86	86	83	80	958
557	Stores, restaurants and garages	101	100	98	99	102	102	107	115	116	107	103	104	1,254
905	Other nonresidential building..	148	154	157	166	172	172	178	172	169	167	178	175	2,008
3,003	Farm construction.....	136	135	134	133	132	131	129	128	127	126	125	124	1,560
85	Public utility.....	360	359	360	360	361	360	361	362	363	364	365	366	4,341
901	All other private.....	8	8	8	8	8	9	10	10	12	13	13	14	121
654	Public, total.....	1,007	1,029	999	963	988	983	953	973	952	898	985	1,079	11,809
136	Residential.....	41	38	36	35	30	25	23	22	21	21	22	22	336
388	Nonresidential building.....	407	419	394	382	381	387	374	385	372	363	364	393	4,641
2,820	Military facilities.....	87	89	84	83	81	87	82	82	81	87	90	97	1,030
790	Highway.....	302	304	306	284	320	314	309	318	314	266	320	393	3,750
193	Sewer and water.....	83	89	87	82	78	77	74	79	81	80	86	86	982
854	Miscellaneous public service													
66	enterprises.....	17	18	17	17	18	18	19	19	19	18	18	20	218
	Conservation and development.....	59	59	62	67	67	63	60	55	53	51	53	55	704
	All other public.....	11	13	13	13	13	12	12	13	11	12	12	13	148



## Section II—CONSTRUCTION COSTS

### INTRODUCTION

This section presents historical index series on construction costs, wholesale prices of building materials, and union hourly wage rates and weekly hours in the building trades. Current data for most of these series appear regularly in Construction Review. Descriptions of these indexes are given in Appendix C of this Supplement.

### UNION SCALES OF WAGES AND HOURS

Information about union wages and hours in the building trades is compiled by the Bureau of Labor Statistics on journeymen, helpers and laborers, and all occupational classes. The indexes shown here in table 9 give annual trends for all unionized workers, for journeymen, and for helpers and laborers.

### CONSTRUCTION COST INDEXES

Various construction cost indexes are compiled by private and governmental agencies, covering different types of construction. Table 10 contains 18 representative indexes on an annual basis, and table 11 gives 8 indexes available on a monthly basis. Any of these indexes not on a base of 1947-49=100 have been converted to that base.

### BUILDING MATERIALS WHOLESALE PRICE INDEXES

The building materials wholesale price indexes compiled by the Bureau of Labor Statistics measure the direction and amount of change in price movements at primary market levels.

Major revisions were made in this series beginning with January 1952 data, involving expanded coverage, the classification system, the base period, weights, and calculation methods. Whereas table 12 presents data for seven all-inclusive subgroups and a group total (as the former index was compiled), table 13 gives the new "All building materials" index plus data for selected subgroups only. The latter items chosen for publication here are those that are similar, or more nearly similar, to the items in table 12. The earlier index is official through 1951, but the revised index has been computed back to January 1947 for purposes of comparison.

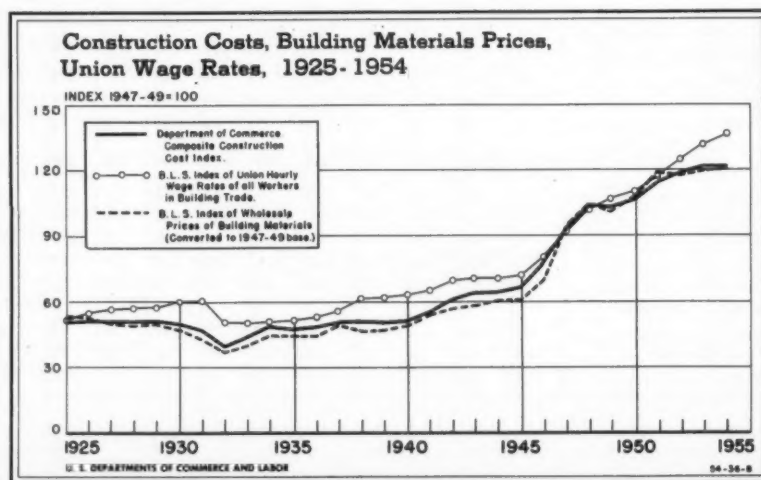




Table 9.—INDEXES OF UNION HOURLY WAGE RATES AND WEEKLY HOURS IN BUILDING TRADES, 1915-54  
[1947-49=100]

Year	All workers		Journeyman		Helpers and laborers	
	Hourly wage rate	Weekly hours	Hourly wage rate	Weekly hours	Hourly wage rate	Weekly hours
1915.....	23.2	117.4	24.3	116.4	17.2	120.7
1916.....	23.9	117.0	25.1	115.9	17.8	120.4
1917.....	25.4	116.7	26.5	115.7	19.6	119.9
1918.....	28.2	116.1	29.3	115.0	22.7	119.5
1919.....	32.3	115.5	33.4	114.6	26.2	118.4
1920.....	43.6	115.0	44.7	114.1	38.1	117.6
1921.....	44.4	114.9	45.6	114.0	38.4	117.6
1922.....	41.7	114.9	42.9	114.1	35.0	117.3
1923.....	46.0	115.0	47.4	114.2	37.1	117.5
1924.....	49.7	115.0	51.1	114.2	40.1	117.5
1925.....	51.6	115.0	53.0	114.2	41.5	117.3
1926.....	55.0	114.8	56.6	114.0	45.2	117.0
1927.....	56.9	114.6	58.5	113.7	46.0	117.0
1928.....	57.2	113.9	59.0	112.9	46.5	116.9
1929.....	58.0	112.9	59.7	112.2	47.3	114.6
1930.....	60.4	109.7	62.2	108.9	49.7	112.0
1931.....	60.6	108.4	62.4	107.4	49.4	111.1
1932.....	51.8	106.4	53.4	105.5	42.2	108.6
1933.....	50.3	106.1	51.9	105.1	40.3	108.1
1934.....	50.7	102.2	52.2	101.3	41.5	104.7
1935.....	51.3	101.4	52.8	100.5	41.7	104.0
1936.....	53.1	101.4	54.6	100.5	44.1	104.2
1937.....	56.8	101.8	58.3	100.9	48.0	104.6
1938.....	61.8	100.1	63.4	99.1	52.8	102.9
1939.....	62.3	99.9	63.8	99.0	53.2	102.7
1940.....	63.3	99.8	64.7	99.0	54.3	102.1
1941.....	65.6	100.2	67.0	99.5	56.9	102.4
1942.....	69.7	101.0	70.8	100.8	62.5	101.5
1943.....	70.2	100.9	71.2	101.0	63.3	100.8
1944.....	70.8	101.1	71.7	101.2	64.0	100.8
1945.....	72.2	101.1	73.0	101.2	67.0	100.8
1946.....	80.5	100.1	80.9	100.1	77.9	100.1
1947.....	92.1	100.0	92.3	99.9	91.1	100.1
1948.....	101.8	100.0	101.7	100.0	102.6	100.0
1949.....	106.1	100.1	106.0	100.1	106.4	100.0
1950.....	110.7	100.2	110.5	100.2	112.2	100.0
1951.....	117.8	100.1	117.4	100.1	119.9	99.9
1952.....	125.1	100.1	124.6	100.1	127.7	100.1
1953.....	131.6	100.1	130.7	100.1	136.5	100.1
1954.....	136.4	100.1	135.4	100.1	142.4	100.1

Source: U. S. Department of Labor, Bureau of Labor Statistics.

Table 10.—CONSTRUCTION COST INDEXES, 1915-54

[1947-49=100]

Year	Department of Commerce Composite	American Appraisal Company	Associated General Contractors	E. H. Boeckh and Associates			Engineering News-Record	
				Residences	Apartments, hotels, and office buildings	Commercial and factory buildings	Building	Construction
1915.....	28.4	21.5	30.9	26.7	27.6	28.5	28.2	20.9
1916.....	31.4	24.7	35.3	28.4	30.9	33.0	38.7	29.6
1917.....	38.7	30.4	47.0	33.2	37.1	40.2	49.3	40.3
1918.....	46.0	37.7	54.1	39.6	42.2	44.3	47.1	42.0
1919.....	51.9	48.7	61.2	46.0	47.9	48.8	47.0	44.0
1920.....	64.0	60.2	76.4	59.3	61.3	60.8	61.3	55.9
1921.....	51.7	46.0	61.9	47.6	49.2	49.7	49.1	43.4
1922.....	47.2	42.6	56.9	43.8	46.2	46.1	46.3	38.8
1923.....	52.1	47.7	62.2	49.1	51.1	51.5	55.5	47.7
1924.....	51.8	47.2	62.5	48.4	50.2	51.3	54.8	47.4
1925.....	50.8	46.2	61.5	47.9	50.6	50.9	54.1	45.8
1926.....	50.9	46.2	60.9	48.4	51.0	51.3	54.8	46.0
1927.....	50.6	46.2	61.9	47.7	50.3	50.7	55.0	45.4
1928.....	50.5	46.2	61.5	47.9	50.6	50.7	55.7	45.7
1929.....	51.8	46.2	62.8	50.0	51.7	52.2	56.5	45.7
1930.....	50.1	42.6	61.9	48.7	50.9	51.4	54.6	44.5
1931.....	46.0	37.9	60.6	44.9	46.9	47.6	49.0	39.4
1932.....	39.8	33.0	52.9	38.0	40.0	41.0	41.4	34.6
1933.....	43.4	31.9	50.4	38.0	41.1	42.0	44.2	38.2
1934.....	48.2	34.3	55.1	41.3	45.2	45.8	49.5	43.9
1935.....	46.6	34.5	54.4	40.3	44.5	45.1	49.0	43.4
1936.....	48.2	36.2	55.4	41.7	45.8	46.5	51.3	45.9
1937.....	51.4	42.1	58.1	46.6	51.1	51.9	58.3	52.2
1938.....	51.7	42.3	58.5	48.0	53.2	53.8	58.2	52.0
1939.....	51.0	42.6	58.1	48.9	53.9	54.3	58.5	52.1
1940.....	51.8	43.4	58.4	50.5	54.8	55.2	60.1	53.6
1941.....	55.0	46.2	61.1	54.6	57.3	57.9	62.8	57.2
1942.....	61.4	51.3	64.8	57.6	60.4	60.8	66.0	61.3
1943.....	64.7	53.6	66.9	60.2	62.8	63.2	67.8	64.2
1944.....	64.4	55.5	69.1	65.4	67.0	67.5	69.5	66.1
1945.....	66.7	57.7	71.4	70.1	71.3	71.6	70.9	68.2
1946.....	76.5	68.5	79.4	77.0	78.0	78.1	78.9	77.7
1947.....	93.3	91.5	91.6	93.2	91.7	91.7	93.5	92.2
1948.....	104.0	104.3	102.5	104.8	103.5	103.6	102.4	102.4
1949.....	103.0	104.3	105.8	102.1	104.8	104.8	104.1	105.4
1950.....	106.5	106.4	110.4	107.7	109.6	109.5	111.9	113.3
1951.....	115.4	113.1	116.7	116.0	118.0	117.9	118.8	119.9
1952.....	119.1	117.7	119.8	119.1	122.0	121.9	123.4	126.3
1953.....	121.8	122.7	126.5	121.2	125.8	126.5	127.7	132.9
1954.....	121.6	125.7	131.9	120.3	126.8	127.7	132.3	139.2

Table 10.—CONSTRUCTION COST INDEXES, 1915-54—Continued

[1947-49=100]

Year	Agricultural Marketing Service		George A. Fuller Co.	Mandy Public Utility			ICC—Bureau of Valuation		Bureau of Public Roads Highway	Turner Construction Co. Industrial building
	Farm operators dwellings	Farm service buildings		Building construction	Gas plant construction	Electric light and power	Railroad construction	Telephone and telegraph lines		
1915..	27.7	31.0	34.9	34.0	27.3	29.2	38.5	41.8	46.0	25.4
1916..	31.0	35.6	38.4	38.7	33.3	36.0	42.0	50.3	48.7	29.6
1917..	37.1	42.3	41.9	55.8	45.2	43.6	51.1	59.6	56.0	36.3
1918..	45.3	50.6	43.0	58.0	52.7	50.9	60.7	64.0	67.7	41.0
1919..	55.4	58.8	45.2	56.8	57.0	53.4	67.9	66.5	74.9	48.4
1920..	60.4	65.0	56.2	68.3	61.2	58.7	81.7	77.8	97.4	62.2
1921..	43.1	47.8	50.5	52.7	57.0	53.6	66.8	77.4	80.6	45.2
1922..	44.5	48.4	47.0	45.9	46.8	52.9	59.9	65.7	73.5	43.2
1923..	46.7	50.3	51.1	53.0	50.8	52.2	65.3	75.8	81.9	48.4
1924..	47.2	50.6	52.2	56.9	54.5	53.0	65.3	72.6	78.5	47.9
1925..	48.0	51.5	51.9	55.0	52.7	52.9	63.4	66.1	74.7	48.1
1926..	48.3	51.2	54.3	54.2	52.2	52.0	63.4	63.6	71.8	48.1
1927..	48.3	50.9	53.0	53.2	50.8	51.1	62.6	66.1	70.8	46.9
1928..	47.5	50.3	52.7	52.4	49.2	51.9	61.5	66.9	66.2	46.9
1929..	48.0	50.6	54.0	52.8	50.0	54.6	61.1	66.9	64.0	45.6
1930..	46.1	48.7	53.5	49.9	49.5	52.1	58.0	60.8	59.5	40.7
1931..	39.8	42.0	48.4	46.1	47.7	50.9	54.6	55.9	53.3	35.8
1932..	34.3	36.8	42.2	41.7	44.0	48.0	50.0	49.0	42.4	33.6
1933..	34.3	37.1	41.7	42.9	44.0	49.3	48.5	48.2	53.3	34.5
1934..	38.4	41.7	46.0	47.9	48.8	53.7	50.0	50.3	58.3	39.5
1935..	38.7	41.7	44.9	47.8	50.0	54.6	50.0	51.9	56.0	40.0
1936..	39.5	42.0	45.2	49.1	51.5	56.2	50.8	53.1	57.6	41.7
1937..	41.7	44.4	50.3	53.5	56.2	61.3	54.2	54.7	55.1	47.4
1938..	40.4	43.5	51.6	52.7	57.0	60.9	52.7	52.3	50.6	46.4
1939..	40.4	43.2	52.4	52.5	57.0	61.4	52.3	52.3	50.4	44.9
1940..	40.9	43.8	52.7	53.3	57.9	62.4	53.4	54.3	49.7	47.6
1941..	45.3	48.1	55.4	58.2	60.4	65.1	57.6	58.0	56.5	53.0
1942..	51.6	54.9	61.6	62.6	63.2	67.3	66.8	63.2	75.6	60.4
1943..	58.5	61.3	64.0	63.3	64.3	67.8	71.0	66.9	86.7	63.4
1944..	65.6	67.4	64.5	64.2	64.7	67.6	71.4	66.9	78.5	60.2
1945..	69.7	71.4	64.8	65.8	66.3	68.9	75.2	70.1	75.7	64.9
1946..	76.0	77.5	78.0	76.5	76.5	78.8	82.4	77.8	82.6	78.5
1947..	96.1	94.7	95.2	89.8	90.6	91.8	93.5	96.9	93.8	93.8
1948..	104.0	103.6	102.2	102.8	102.3	101.0	103.4	101.7	105.0	104.1
1949..	99.9	101.7	102.7	107.5	107.1	107.2	103.1	101.3	101.3	102.1
1950..	102.1	103.6	101.3	111.9	111.0	112.9	105.3	109.4	95.6	105.4
1951..	112.5	115.2	108.9	121.0	120.7	127.4	113.7	117.6	106.7	117.9
1952..	113.9	117.7	111.8	123.9	123.8	130.5	117.6	121.6	112.8	120.9
1953..	114.7	118.3	115.3	130.3	129.3	137.4	121.8	127.7	111.3	123.4
1954..	114.2	118.0	<sup>2</sup> 121.5	134.9	135.9	141.4	(1)	(1)	105.0	<sup>2</sup> 120.1

<sup>1</sup>Not available.<sup>2</sup>As of July.

Source: See Appendix C on pp. 72-75.

Table 11.—CONSTRUCTION COST INDEXES, BY MONTHS, 1949-54

[1947-49 = 100]

Year and month	Department of Commerce Composite	American Appraisal Company	Associated General Contractors	E. H. Boeckh and Associates			Engineering News-Record	
				Residences	Apartments, hotels, and office buildings	Commercial and factory buildings	Building	Construction
1949:								
January.....	105.7	106.8	105.5	105.1	106.3	106.6	104.4	104.4
February.....	105.6	106.2	104.8	105.2	106.5	106.6	104.3	104.8
March.....	104.8	105.5	104.8	104.3	106.1	106.2	103.9	104.7
April.....	104.2	105.1	105.2	103.8	105.6	105.7	103.2	104.2
May.....	103.2	104.7	105.2	102.2	104.5	104.3	103.3	104.6
June.....	103.1	104.0	106.1	102.0	104.7	104.6	103.4	105.4
July.....	101.9	103.8	106.1	99.9	103.4	103.4	103.8	105.6
August.....	101.4	103.4	105.8	99.4	103.4	103.3	104.1	105.9
September.....	101.6	103.2	106.1	100.0	103.7	103.6	104.4	106.1
October.....	101.8	103.0	106.7	100.9	104.2	104.1	104.4	106.0
November.....	101.8	103.0	106.7	101.2	104.4	104.4	104.5	106.0
December.....	101.6	102.8	106.7	101.0	104.5	104.4	105.4	107.0
1950:								
January.....	101.7	103.4	106.7	101.2	104.8	104.8	105.4	107.0
February.....	102.3	103.4	107.0	102.2	105.5	105.5	106.5	107.8
March.....	102.4	103.4	107.0	103.0	106.0	106.0	107.3	108.6
April.....	102.7	103.8	107.0	103.5	106.3	106.3	107.7	109.6
May.....	104.9	104.3	107.0	106.7	108.4	108.5	110.4	111.9
June.....	105.9	106.0	107.9	108.0	109.3	109.4	111.7	113.2
July.....	107.5	106.8	110.4	109.8	110.8	110.7	113.3	115.1
August.....	109.4	108.1	113.2	111.8	111.9	111.9	116.2	117.1
September.....	110.0	109.1	114.1	111.6	112.2	112.0	117.5	118.2
October.....	109.9	109.6	114.7	111.0	112.1	111.9	115.4	116.8
November.....	110.2	109.4	114.7	111.0	112.9	112.5	115.8	117.0
December.....	111.6	110.0	114.7	112.6	114.2	113.9	116.2	117.4
1951:								
January.....	113.1	111.3	115.7	114.0	115.8	115.7	117.8	118.8
February.....	113.9	111.5	115.7	115.3	116.8	116.8	118.1	119.0
March.....	114.1	111.7	116.3	115.5	117.2	117.1	118.3	119.2
April.....	114.7	112.1	116.3	115.6	117.3	117.2	118.6	119.8
May.....	115.2	112.3	116.9	116.2	118.1	118.0	118.5	119.8
June.....	115.4	113.0	117.2	116.2	118.3	118.1	118.4	119.7
July.....	115.6	113.8	117.2	115.8	118.2	118.1	118.3	119.8
August.....	115.8	113.8	116.9	115.9	118.3	118.1	118.4	119.9
September.....	116.5	114.0	116.6	116.6	118.7	118.6	119.3	120.6
October.....	116.9	114.5	117.2	117.2	119.2	119.0	119.6	120.8
November.....	117.1	114.5	116.9	117.2	119.2	119.0	119.9	120.9
December.....	117.0	114.7	117.5	116.7	119.5	119.2	120.0	120.9

Table 11.—CONSTRUCTION COST INDEXES, BY MONTHS, 1949-54—Continued

[1947-49=100]

Year and month	Department of Commerce Composite	American Appraisal Company	Associated General Contractors	E. H. Boeckh and Associates			Engineering News-Record	
				Residences	Apartments, hotels, and office buildings	Commercial and factory buildings	Building	Construction
1952:								
January.....	117.4	115.3	117.5	117.7	120.0	119.6	120.1	121.2
February.....	117.3	115.5	116.9	117.6	119.8	119.5	120.4	121.5
March.....	117.4	115.7	116.9	117.6	119.9	119.7	120.6	122.3
April.....	117.6	116.0	117.2	118.0	120.4	120.1	121.4	123.0
May.....	118.2	116.6	117.8	118.3	120.8	120.8	122.0	124.0
June.....	119.1	117.0	118.1	119.4	122.0	121.9	122.6	126.0
July.....	119.9	118.1	120.9	119.8	122.7	122.8	124.9	128.8
August.....	120.3	118.7	121.5	120.2	123.4	123.5	125.5	129.4
September.....	120.5	119.4	121.5	120.4	123.7	123.9	125.6	129.9
October.....	120.4	119.6	122.8	120.2	123.8	123.9	126.0	129.9
November.....	120.3	120.0	123.1	119.9	123.6	123.7	125.7	129.7
December.....	120.4	120.6	123.4	119.8	123.6	123.7	125.7	129.6
1953:								
January.....	120.4	120.9	123.1	120.1	123.8	124.0	125.8	129.7
February.....	120.7	120.6	123.1	120.1	123.7	124.0	125.7	129.8
March.....	120.5	121.1	123.4	120.3	124.0	124.3	126.1	130.3
April.....	121.0	121.7	124.0	120.4	124.2	124.5	126.1	130.2
May.....	121.3	121.7	124.3	120.8	124.8	125.1	126.0	131.1
June.....	122.2	121.9	127.1	121.5	125.8	126.5	128.7	133.5
July.....	123.1	123.4	127.1	122.4	127.0	127.7	129.2	135.2
August.....	123.0	124.0	128.7	122.1	127.2	127.7	128.9	134.8
September.....	122.8	124.0	129.0	121.9	127.4	127.9	128.9	135.0
October.....	122.6	124.3	129.3	121.4	127.1	127.7	128.9	135.0
November.....	122.4	124.5	129.3	121.5	127.3	127.8	128.8	134.9
December.....	122.0	124.5	129.3	121.3	127.3	127.8	129.1	135.5
1954:								
January.....	121.4	124.3	130.5	120.4	126.4	127.0	129.3	135.7
February.....	120.8	124.5	129.6	119.5	125.9	126.5	129.2	135.5
March.....	120.7	124.7	129.9	119.6	125.8	126.4	129.4	135.8
April.....	120.6	124.5	130.5	119.1	125.6	126.4	129.6	136.6
May.....	120.8	124.7	130.5	119.5	126.3	127.0	130.0	137.3
June.....	121.2	125.3	131.1	120.0	126.5	127.3	131.3	138.7
July.....	122.0	125.7	132.7	120.7	127.1	128.2	134.7	141.6
August.....	121.9	126.4	133.0	120.7	127.4	128.5	134.4	141.3
September.....	122.1	126.6	133.3	120.8	127.5	128.6	134.7	141.6
October.....	122.6	127.0	133.6	121.0	127.6	128.7	135.0	141.8
November.....	122.4	127.2	133.6	121.0	127.5	128.6	135.1	141.9
December.....	122.5	127.2	133.6	121.1	127.7	128.7	135.4	142.1



Table 12.—INDEXES OF WHOLESALE PRICES OF BUILDING MATERIALS, 1915-51  
[1947-49 = 100]

Year	All building materials	Brick and tile	Cement	Lumber	Paint and paint materials	Plumbing and heating	Structural steel	Other building materials
1915.....	28.0	25.6	40.3	16.7	34.7	( <sup>1</sup> )	41.0	40.1
1916.....	35.4	27.8	51.6	18.9	48.8	( <sup>1</sup> )	81.0	54.1
1917.....	46.2	32.9	63.4	24.7	60.4	( <sup>1</sup> )	119.9	70.3
1918.....	51.7	43.7	74.7	28.6	77.2	( <sup>1</sup> )	96.3	74.6
1919.....	60.6	60.2	80.8	38.7	88.9	( <sup>1</sup> )	80.9	72.0
1920.....	78.7	77.6	92.5	56.6	93.8	( <sup>1</sup> )	90.7	83.2
1921.....	51.1	69.2	87.5	30.5	53.1	( <sup>1</sup> )	65.6	68.5
1922.....	51.0	65.1	81.7	33.9	59.4	( <sup>1</sup> )	55.6	58.7
1923.....	57.0	67.9	85.2	38.3	64.2	( <sup>1</sup> )	77.7	65.0
1924.....	53.6	67.7	83.4	34.0	63.1	( <sup>1</sup> )	71.7	64.1
1925.....	53.3	65.6	81.0	34.5	69.2	( <sup>1</sup> )	64.2	61.0
1926.....	52.4	65.5	78.9	34.3	63.3	70.1	62.8	61.6
1927.....	49.7	62.7	75.3	31.9	61.0	64.5	59.5	58.8
1928.....	49.3	62.6	73.0	31.0	59.0	66.7	59.8	59.6
1929.....	50.0	61.8	70.3	32.1	60.1	66.6	61.6	60.2
1930.....	47.1	58.8	70.9	29.4	57.3	62.1	54.8	57.5
1931.....	41.5	54.8	59.1	23.8	50.3	59.4	52.2	52.3
1932.....	37.4	50.6	58.7	20.0	45.0	46.8	50.8	49.0
1933.....	40.4	51.9	69.6	24.2	46.4	47.0	52.2	51.0
1934.....	45.2	59.1	73.5	28.9	50.3	50.9	57.0	55.7
1935.....	44.7	58.6	73.2	28.0	50.5	48.3	57.8	55.5
1936.....	45.5	58.1	72.8	29.8	50.7	52.6	59.7	55.6
1937.....	49.9	61.2	70.3	34.2	52.8	55.2	71.1	61.1
1938.....	47.3	59.6	71.3	29.9	51.5	55.0	69.7	57.1
1939.....	47.4	59.9	72.1	31.9	52.4	55.5	67.4	55.7
1940.....	49.7	59.3	71.7	35.2	54.3	56.4	67.4	57.5
1941.....	54.1	61.4	72.6	42.0	57.9	59.4	67.4	60.6
1942.....	57.8	64.2	74.2	45.6	63.5	66.9	67.4	63.8
1943.....	58.4	64.9	74.1	48.4	64.8	63.6	67.4	62.9
1944.....	60.6	66.6	75.6	52.5	66.6	64.6	67.4	63.6
1945.....	61.8	73.6	78.5	53.1	67.7	65.5	67.4	64.4
1946.....	69.5	80.5	82.2	61.1	75.0	72.8	74.4	73.1
1947.....	94.2	91.7	91.3	95.1	103.0	87.9	84.5	90.9
1948.....	104.4	102.4	103.0	106.9	101.2	103.6	102.8	103.3
1949.....	101.4	105.9	105.6	98.0	95.8	108.5	112.6	105.8
1950.....	108.0	110.2	107.8	112.1	89.9	114.0	121.0	110.0
1951.....	118.2	117.8	116.2	120.4	102.7	128.9	128.4	122.1

<sup>1</sup> Not computed as separate subgroup prior to 1926.

Source: Index numbers from Bureau of Labor Statistics, Department of Labor (converted to base 1947-49 = 100).

Table 13.—INDEXES OF WHOLESALE PRICES OF BUILDING MATERIALS, BY MONTHS 1949-54

[1947-49=100]

Year and month	All building materials	Structural clay products	Cement	Lumber	Prepared paint	Plumbing equipment	Heating equipment	Structural steel shapes
1949 average.....	102.0	105.3	105.8	98.2	101.2	102.7	103.6	112.7
January.....	105.4	105.2	105.8	103.6	104.1	104.5	105.7	112.4
February.....	104.9	105.3	105.8	102.4	104.2	103.8	105.6	112.4
March.....	104.4	105.3	105.8	101.3	104.5	103.3	104.9	112.4
April.....	103.4	105.3	105.7	100.1	104.5	103.0	104.6	112.4
May.....	102.4	105.4	105.7	98.6	104.5	102.2	104.5	112.4
June.....	101.5	105.4	105.7	97.1	104.5	102.2	103.6	112.4
July.....	100.3	105.4	105.3	95.6	98.3	102.2	102.7	112.4
August.....	99.7	105.2	105.2	94.0	98.0	102.2	102.5	112.4
September.....	99.9	105.1	105.2	94.6	98.0	102.2	102.3	112.4
October.....	100.2	105.1	106.4	95.9	98.0	102.2	102.2	112.4
November.....	100.6	105.3	106.4	97.0	98.0	102.2	102.1	112.4
December.....	101.2	105.3	106.4	98.3	98.0	101.7	102.1	116.4
1950 average.....	109.5	112.6	108.0	114.5	99.3	108.2	105.1	121.1
January.....	102.1	108.4	106.6	99.9	98.0	101.7	101.8	120.4
February.....	103.2	109.2	106.6	102.4	98.0	101.7	102.0	120.4
March.....	104.1	109.4	106.7	104.6	98.0	101.5	102.0	120.4
April.....	104.7	109.4	106.7	106.5	98.0	102.2	102.0	120.4
May.....	106.3	110.0	106.7	110.8	98.0	103.1	102.2	120.4
June.....	107.5	110.5	106.7	113.5	98.0	103.2	102.0	120.4
July.....	109.1	111.4	107.0	116.7	98.1	103.3	102.9	120.4
August.....	112.0	112.3	107.1	121.7	99.5	109.5	105.4	120.4
September.....	114.4	113.0	107.8	126.0	100.4	110.9	107.2	120.4
October.....	115.8	117.6	111.1	124.2	100.5	116.8	109.8	120.4
November.....	116.3	119.2	111.4	123.4	101.1	121.3	110.6	120.4
December.....	118.3	120.3	111.8	123.9	104.3	123.1	113.0	128.4
1951 average.....	119.6	121.4	116.4	123.6	109.0	122.5	114.6	128.4
January.....	120.2	121.3	116.4	125.6	107.5	123.2	114.5	128.4
February.....	120.7	121.4	116.4	126.4	108.6	123.2	114.7	128.4
March.....	120.8	121.4	116.4	126.7	108.6	123.2	114.8	128.4
April.....	120.9	121.4	116.4	126.7	109.1	123.2	114.8	128.4
May.....	120.7	121.4	116.4	126.0	109.1	123.2	114.8	128.4
June.....	120.0	121.4	116.4	124.2	109.1	122.9	114.6	128.4
July.....	119.4	121.4	116.4	123.0	109.1	122.6	114.4	128.4
August.....	118.9	121.4	116.4	121.7	109.1	122.4	114.5	128.4
September.....	118.7	121.4	116.4	120.9	109.1	121.9	114.5	128.4
October.....	118.7	121.4	116.4	121.1	109.3	121.5	114.6	128.4
November.....	118.5	121.4	116.4	120.8	109.4	121.3	114.4	128.4
December.....	118.0	121.4	116.4	120.4	109.4	120.9	114.5	128.4

Table 13.—INDEXES OF WHOLESALE PRICES OF BUILDING MATERIALS, BY MONTHS 1949-54—Continued

[1947-49=100]

Year and month	All building materials	Structural clay products	Cement	Lumber	Prepared paint	Plumbing equipment	Heating equipment	Structural steel shapes
1952 average.....	118.2	122.0	116.4	120.5	110.4	117.4	113.8	131.1
January.....	117.8	121.4	116.4	120.4	109.4	116.6	114.0	128.4
February.....	117.9	121.4	116.4	120.6	109.7	116.7	114.0	128.4
March.....	118.0	121.4	116.4	120.7	109.8	116.7	114.0	128.4
April.....	118.2	121.3	116.4	121.3	110.6	116.3	113.9	128.4
May.....	118.1	121.4	116.4	121.1	110.6	116.0	113.7	128.4
June.....	117.8	121.4	116.4	120.1	110.6	118.0	113.5	128.4
July.....	118.0	121.3	116.4	120.4	110.6	118.1	113.6	128.4
August.....	118.6	121.3	116.4	120.6	110.6	118.1	113.7	134.9
September.....	118.7	121.3	116.4	120.6	110.6	118.1	113.7	134.9
October.....	118.6	124.0	116.4	120.2	110.6	118.1	113.7	134.9
November.....	118.4	124.0	116.4	120.0	110.5	118.1	113.6	134.9
December.....	118.3	124.0	116.4	119.8	110.5	118.1	113.6	134.9
1953 average.....	119.9	128.1	122.2	119.3	111.1	116.0	114.8	138.2
January.....	118.5	124.0	116.4	120.1	110.5	113.6	113.8	134.9
February.....	118.7	124.0	116.4	120.3	110.5	114.3	113.9	134.9
March.....	119.2	124.3	117.3	120.9	109.8	114.3	113.9	134.9
April.....	119.9	124.6	123.5	121.5	110.5	113.8	113.8	134.9
May.....	120.2	124.7	123.8	120.9	110.8	113.8	114.4	133.8
June.....	120.5	125.1	123.8	120.7	110.8	113.5	114.6	133.8
July.....	121.3	131.1	123.8	120.2	110.7	116.4	115.1	141.9
August.....	120.8	131.4	123.8	119.3	110.7	116.7	115.6	141.9
September.....	120.4	132.0	124.2	118.3	111.0	118.7	115.8	141.9
October.....	120.0	132.0	124.4	117.2	112.1	118.2	115.8	141.9
November.....	119.5	132.1	124.4	116.3	112.7	118.2	115.8	141.9
December.....	119.6	132.1	124.4	116.4	112.7	118.2	115.5	141.9
1954 average.....	120.2	133.1	126.6	117.3	112.8	118.4	114.3	143.8
January.....	119.6	131.9	124.8	115.9	112.8	118.2	115.3	141.9
February.....	119.2	131.9	124.8	115.5	112.8	118.2	114.8	141.3
March.....	119.3	132.0	124.8	115.6	112.8	118.2	114.4	141.3
April.....	119.0	132.0	124.9	115.3	112.8	118.2	114.5	141.3
May.....	118.6	132.0	124.9	115.0	112.8	118.2	113.9	141.3
June.....	118.5	132.0	124.9	115.5	112.8	118.5	113.8	141.3
July.....	120.5	132.0	128.2	118.6	112.8	118.5	114.0	146.2
August.....	120.8	132.3	128.3	118.7	112.8	118.5	114.1	146.2
September.....	121.3	135.4	128.3	119.0	112.8	118.5	114.1	146.2
October.....	121.7	135.4	128.3	119.5	112.8	118.7	114.3	146.2
November.....	121.9	135.4	128.3	119.6	112.8	118.7	114.3	146.2
December.....	122.0	135.4	128.3	119.8	112.8	118.7	114.3	146.2

Source: Bureau of Labor Statistics, Department of Labor.

## Section III—PHYSICAL VOLUME OF NEW CONSTRUCTION

### INTRODUCTION

The data given in this Section on the value of various types of construction and of all types combined in terms of 1947-49 prices represent only a rough approximation of changes in the physical volume of construction. Any attempt to adjust actual dollars spent for various types of construction to a constant purchasing power will only be as successful as the validity of the indexes of construction costs used for the purpose. Conversion of the total value of new construction in 1947-49 prices to an index of physical volume, as presented in table 14, does not add anything to the validity of the measurement, but it may provide a more convenient tool for use with such other broad economic indicators as the Index of Industrial Production compiled by the Board of Governors of the Federal Reserve System.

The other two series, housing starts and square feet of floor space in selected types of nonresidential buildings, are presented in this section to provide supplementary indications of the physical volume of construction. Certain types of new construction, such as public works, utilities, refineries, and chemical plants may have negligible or no floor area. It will be noted that the trends of these two series do not correspond exactly with trends of values of the same types of building expressed in 1947-49 prices. The differences are undoubtedly due to a variety of causes, none of which can be measured in quantitative terms.

Descriptions of the sources and techniques used in deriving these series will be found in Appendix C.

Table 14.—ACTUAL VALUES OF TOTAL NEW CONSTRUCTION, ADJUSTED VALUES IN 1947-49 PRICES, AND INDEX OF PHYSICAL VOLUME, 1915-54

[Dollar figures in millions]

Year	Total new construction		Index of physical volume (1947-49=100)	Year	Total new construction		Index of physical volume (1947-49=100)
	Actual values	Adjusted values (1947-49 prices)			Actual values	Adjusted values (1947-49 prices)	
1915.....	3,262	11,503	57	1935..	4,232	9,081	45
1916.....	3,849	12,247	61	1936..	6,497	13,489	67
1917.....	4,569	11,811	58	1937..	6,999	13,620	67
1918.....	5,118	11,124	55	1938..	6,980	13,492	67
1919.....	6,296	12,129	60	1939..	8,198	16,063	79
1920.....	6,749	10,546	52	1940..	8,682	16,766	83
1921.....	6,004	11,621	57	1941..	11,957	21,747	107
1922.....	7,647	16,203	80	1942..	14,075	22,913	113
1923.....	9,332	17,928	89	1943..	8,301	12,828	63
1924.....	10,407	20,099	99	1944..	5,259	8,162	40
1925.....	11,439	22,504	111	1945..	5,633	8,430	42
1926.....	12,082	23,752	117	1946..	12,000	15,531	77
1927.....	12,034	23,787	118	1947..	16,689	17,784	88
1928.....	11,641	23,036	114	1948..	21,678	20,763	103
1929.....	10,793	20,853	103	1949..	22,789	22,177	110
1930.....	8,741	17,440	86	1950..	28,454	26,608	131
1931.....	6,427	13,977	69	1951..	31,182	26,988	133
1932.....	3,538	8,892	44	1952..	33,008	27,662	137
1933.....	2,879	6,631	33	1953..	35,271	28,931	143
1934.....	3,720	7,725	38	1954..	37,577	30,912	153

Table 15.—VALUE OF NEW PRIVATE CONSTRUCTION IN 1947-49 PRICES, 1915-54

[Millions of dollars]

Year	Total private <sup>1</sup>	Residential	Nonresidential building <sup>2</sup>				
			Total	Industrial	Office buildings and warehouses	Stores, restaurants, and garages	Other nonresidential
1915.....	9,096	4,569	1,949	776	(3)	(3)	(3)
1916.....	10,209	4,842	2,551	885	(3)	(3)	(3)
1917.....	8,749	3,584	2,331	1,003	(3)	(3)	(3)
1918.....	6,425	2,311	1,819	1,095	(3)	(3)	(3)
1919.....	8,610	4,022	2,249	1,283	(3)	(3)	(3)
1920.....	8,777	3,398	3,245	1,777	459	610	399
1921.....	9,109	4,422	3,089	1,270	511	678	630
1922.....	13,210	7,671	3,343	1,081	609	768	885
1923.....	15,323	8,961	3,500	1,134	571	889	906
1924.....	17,028	10,455	3,472	960	582	924	1,006
1925.....	18,913	11,514	4,331	1,067	688	1,262	1,314
1926.....	20,070	11,570	5,250	1,511	724	1,545	1,470
1927.....	19,655	10,818	5,349	1,484	772	1,593	1,500
1928.....	18,657	9,958	5,423	1,710	856	1,450	1,407
1929.....	16,413	7,250	5,664	2,081	1,146	1,117	1,320
1930.....	12,047	4,261	4,475	1,307	1,114	697	1,357
1931.....	8,427	3,486	2,776	617	570	470	1,119
1932.....	4,269	1,658	1,439	220	277	321	621
1933.....	3,223	1,237	1,199	510	106	270	313
1934.....	3,604	1,513	1,207	484	143	312	288
1935.....	4,841	2,506	1,255	395	167	394	299
1936.....	6,994	3,753	1,812	638	246	494	434
1937.....	8,200	4,024	2,393	1,038	272	594	489
1938.....	7,401	4,146	1,717	500	184	449	584
1939.....	9,032	5,485	1,774	563	155	494	562
1940.....	10,114	5,913	2,222	919	173	591	539
1941.....	11,527	6,428	2,941	1,514	222	618	587
1942.....	5,844	2,995	1,128	578	102	184	264
1943.....	3,171	1,466	386	246	22	36	82
1944.....	3,353	1,247	598	345	26	70	157
1945.....	4,777	1,562	1,636	998	86	251	301
1946.....	12,549	5,170	4,485	2,133	417	1,180	755
1947.....	14,112	6,707	3,375	1,817	251	670	637
1948.....	16,156	8,167	3,474	1,338	344	864	928
1949.....	15,956	8,128	3,124	954	313	677	1,180
1950.....	16,885	11,634	3,566	1,004	396	828	1,338
1951.....	18,677	9,457	4,494	1,790	500	733	1,471
1952.....	18,428	9,311	4,211	1,809	461	525	1,316
1953.....	19,433	9,840	4,655	1,807	640	857	1,351
1954.....	20,934	11,214	5,073	1,690	789	998	1,596

<sup>1</sup> Public industrial and commercial building not segregable from private construction, 1915-32; amount believed negligible.

<sup>2</sup> Excludes nonresidential building by privately-owned public utilities.

<sup>3</sup> Not available separately; included in total.



Table 15.—VALUE OF NEW PRIVATE CONSTRUCTION IN 1947-49 PRICES, 1915-54—Continued

[Millions of dollars]

Year	Farm construction			Public utility				All other private
	Total	Operators' dwellings	Service buildings	Total	Railroad	Telephone and telegraph	Other public utility	
1915.....	781	394	387	1,538	626	103	809	259
1916.....	975	497	478	1,632	669	121	842	209
1917.....	1,127	536	591	1,563	706	143	714	144
1918.....	991	448	543	1,181	601	114	466	123
1919.....	1,138	492	646	1,083	392	114	577	118
1920.....	902	440	462	1,110	225	159	726	122
1921.....	489	227	262	969	132	178	562	140
1922.....	577	267	310	1,431	294	178	969	188
1923.....	652	304	348	2,019	553	208	1,258	191
1924.....	607	281	326	2,281	559	270	1,452	213
1925.....	623	293	330	2,234	620	318	1,296	211
1926.....	596	283	313	2,443	774	357	1,312	211
1927.....	714	331	383	2,539	738	321	1,480	235
1928.....	676	328	348	2,395	704	368	1,323	205
1929.....	622	306	316	2,687	835	529	1,323	190
1930.....	409	232	177	2,742	898	548	1,296	160
1931.....	238	148	90	1,805	535	297	973	122
1932.....	105	70	35	976	278	178	520	91
1933.....	139	85	54	546	194	93	259	102
1934.....	166	94	72	645	256	93	296	73
1935.....	314	158	156	709	232	100	377	57
1936.....	394	192	202	988	293	126	569	47
1937.....	480	239	241	1,247	367	186	694	56
1938.....	407	196	211	1,077	226	176	675	54
1939.....	508	263	245	1,214	262	178	774	51
1940.....	573	355	218	1,347	312	224	811	59
1941.....	666	401	265	1,438	324	308	806	54
1942.....	490	262	228	1,201	295	247	659	30
1943.....	473	207	266	835	297	91	447	11
1944.....	425	165	260	1,065	346	124	595	18
1945.....	377	143	234	1,172	351	166	655	30
1946.....	1,097	530	567	1,731	312	390	1,029	66
1947.....	1,459	707	752	2,496	339	522	1,635	75
1948.....	1,485	708	777	2,966	365	701	1,900	64
1949.....	1,479	699	780	3,151	342	526	2,283	74
1950.....	1,583	741	842	3,001	299	402	2,300	101
1951.....	1,616	764	852	3,056	352	413	2,291	54
1952.....	1,643	781	862	3,184	373	470	2,351	69
1953.....	1,484	704	780	3,362	363	481	2,518	92
1954.....	1,341	637	704	3,216	291	514	2,411	90

Table 16.—VALUE OF NEW PUBLIC CONSTRUCTION IN 1947-49 PRICES, 1915-54

[Millions of dollars]

Year	Total public <sup>1</sup>	Residential	Nonresidential building				
			Total	Industrial	Educational	Hospital and institutional	Other nonresidential
1915.....	2,407	.....	1,009	(1)	(2)	(2)	(2)
1916.....	2,040	.....	838	(1)	(2)	(2)	(2)
1917.....	3,062	.....	632	(1)	(2)	(2)	(2)
1918.....	4,699	71	527	(1)	(2)	(2)	(2)
1919.....	3,519	30	505	(1)	(2)	(2)	(2)
1920.....	1,769	.....	471	(1)	316	55	100
1921.....	2,512	.....	842	(1)	596	87	159
1922.....	2,993	.....	1,129	(1)	803	141	185
1923.....	2,605	.....	1,008	(1)	725	115	168
1924.....	3,071	.....	1,047	(1)	748	127	172
1925.....	3,591	.....	1,240	(1)	866	132	242
1926.....	3,682	.....	1,305	(1)	864	147	294
1927.....	4,132	.....	1,290	(1)	794	173	323
1928.....	4,379	.....	1,381	(1)	818	234	329
1929.....	4,440	.....	1,427	(1)	842	219	366
1930.....	5,393	.....	1,549	(1)	854	277	418
1931.....	5,550	.....	1,615	(1)	752	290	573
1932.....	4,623	.....	1,258	(1)	394	252	612
1933.....	3,408	.....	708	6	157	150	395
1934.....	4,121	2	999	28	402	143	426
1935.....	4,240	22	924	5	432	107	380
1936.....	6,495	146	1,889	10	992	199	688
1937.....	5,420	200	1,268	4	587	169	508
1938.....	6,091	73	1,534	26	714	222	572
1939.....	7,031	130	2,215	51	1,069	298	797
1940.....	6,652	395	1,320	336	332	124	528
1941.....	10,220	788	3,129	2,386	319	91	333
1942.....	17,069	940	6,114	5,638	251	68	157
1943.....	9,657	1,229	3,200	2,938	118	82	62
1944.....	4,809	325	2,273	2,037	74	104	58
1945.....	3,653	115	1,527	1,212	102	147	66
1946.....	2,982	474	495	145	146	125	79
1947.....	3,672	223	644	102	309	92	141
1948.....	4,607	149	1,241	186	591	212	252
1949.....	6,221	353	1,990	173	897	458	462
1950.....	6,723	321	2,237	212	1,061	467	497
1951.....	8,311	512	3,050	821	1,337	466	426
1952.....	9,234	550	3,465	1,384	1,375	401	305
1953.....	9,498	459	3,531	1,434	1,397	297	403
1954.....	9,978	281	3,743	1,253	1,696	289	505

<sup>1</sup> Public industrial and commercial building not segregable from private construction, 1915-32; amount believed negligible. <sup>2</sup> Not available separately; included in total.

Table 16.—VALUE OF NEW PUBLIC CONSTRUCTION IN 1947-49 PRICES, 1915-54—Continued

[Millions of dollars]

Year	Military facilities	Highway	Sewer and water	Miscellaneous public service enterprises	Conservation and development	All other public
1915.....	54	657	409	135	139	4
1916.....	60	645	292	116	86	3
1917.....	1,498	571	208	89	62	2
1918.....	3,337	437	195	70	60	2
1919.....	2,036	573	236	63	74	2
1920.....	237	674	231	65	83	8
1921.....	90	1,058	338	77	99	8
1922.....	49	1,192	420	90	100	13
1923.....	28	983	369	86	118	13
1924.....	16	1,257	478	122	144	7
1925.....	15	1,448	519	226	136	7
1926.....	20	1,486	533	213	114	11
1927.....	22	1,726	581	374	117	22
1928.....	29	1,947	560	302	134	26
1929.....	37	1,978	466	278	212	42
1930.....	60	2,548	645	303	258	30
1931.....	92	2,542	540	415	312	34
1932.....	91	2,259	356	285	342	32
1933.....	90	1,567	205	131	684	23
1934.....	107	1,636	317	96	683	81
1935.....	85	1,448	335	124	1,200	102
1936.....	65	2,151	586	270	1,114	274
1937.....	77	2,064	496	192	940	183
1938.....	131	2,492	546	203	868	244
1939.....	265	2,478	587	205	895	256
1940.....	791	2,409	531	196	829	181
1941.....	3,096	1,739	377	185	764	142
1942.....	8,060	931	250	109	567	98
1943.....	3,834	516	163	73	435	207
1944.....	1,302	461	117	69	241	21
1945.....	1,065	526	138	80	186	16
1946.....	245	1,074	244	125	302	23
1947.....	217	1,532	379	177	424	76
1948.....	152	1,672	520	180	608	85
1949.....	134	2,128	586	190	750	90
1950.....	171	2,367	590	164	786	87
1951.....	788	2,349	655	168	721	68
1952.....	1,195	2,489	639	148	694	54
1953.....	1,105	2,851	681	146	639	86
1954.....	872	3,573	724	156	520	109

Table 17.—VALUE OF NEW CONSTRUCTION IN 1947-49 PRICES; BY MONTHS 1949-54  
[Millions of dollars]

Type of construction	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1949													
Total new construction	1,455	1,345	1,447	1,576	1,820	1,987	2,096	2,183	2,204	2,166	2,039	1,859	22,177
Private, total.....	1,119	1,033	1,084	1,148	1,286	1,397	1,476	1,511	1,514	1,503	1,480	1,405	15,956
Residential (excluding farm)..	533	458	481	527	623	698	757	786	810	827	830	798	8,128
Nonresidential building.....	275	260	254	246	253	263	266	264	257	259	265	262	3,124
Industrial.....	105	99	93	86	80	75	72	71	69	68	68	68	954
Office buildings and ware- houses.....	31	28	27	24	25	25	25	26	23	24	27	28	313
Stores, restaurants and garages.....	50	48	50	51	57	65	65	60	58	58	59	56	677
Other nonresidential bldg..	89	85	84	85	91	98	104	107	107	109	111	110	1,180
Farm construction.....	92	94	101	112	131	144	154	160	151	128	111	101	1,479
Operators' dwellings.....	43	44	47	53	63	69	74	77	72	60	51	46	699
Service buildings.....	49	50	54	59	68	75	80	83	79	68	60	55	780
Public utility.....	215	216	243	257	273	284	291	294	289	283	268	238	3,151
Railroad.....	25	24	27	31	32	31	32	31	29	29	29	22	342
Telephone and telegraph....	42	46	54	48	49	49	42	42	39	39	40	36	526
Other public utility.....	148	146	162	178	192	204	217	221	221	215	199	180	2,283
All other private.....	4	5	5	6	6	8	8	7	7	6	6	6	74
Public, total.....	336	312	363	428	534	590	620	672	690	663	559	454	6,221
Residential.....	15	16	21	25	24	32	32	37	40	41	36	34	353
Nonresidential building.....	130	127	144	149	160	167	170	183	214	212	178	156	1,990
Industrial.....	20	19	20	16	17	16	12	11	11	11	9	173	
Educational.....	62	61	64	68	73	77	80	84	87	83	80	78	897
Hospital and institutional	26	25	32	34	37	40	42	46	47	47	43	39	458
Other nonresidential bldg..	22	22	28	31	33	34	36	42	69	71	44	30	462
Military facilities.....	7	7	8	8	9	11	12	15	15	16	14	12	134
Highway.....	83	64	79	123	200	231	254	280	260	240	191	123	2,128
Sewer and water.....	44	43	47	49	50	50	51	52	54	52	48	46	586
Miscellaneous service enterprises.....	9	10	11	12	17	17	21	22	23	21	15	12	190
Conservation and development..	41	39	45	55	67	74	72	75	75	74	69	64	750
All other public.....	7	6	8	7	7	8	8	8	9	7	8	7	90
1950													
Total new construction	1,720	1,615	1,764	1,984	2,214	2,475	2,574	2,632	2,644	2,569	2,374	2,043	26,608
Private, total.....	1,304	1,263	1,329	1,478	1,653	1,828	1,916	1,947	1,946	1,881	1,762	1,578	19,885
Residential (excluding farm)..	735	699	731	851	971	1,091	1,156	1,182	1,185	1,123	1,019	891	11,634
Nonresidential building.....	249	245	243	242	264	291	307	310	328	353	373	361	3,566
Industrial.....	67	68	68	69	70	75	80	85	94	104	111	113	1,004
Office buildings and ware- houses.....	28	27	25	25	26	28	31	34	38	42	46	46	396
Stores, restaurants and garages.....	49	48	50	50	63	78	80	73	75	85	93	84	828
Other nonresidential bldg..	105	102	100	98	105	110	116	118	121	122	123	118	1,338
Farm construction.....	100	103	114	128	146	159	168	170	156	130	112	97	1,583
Operators' dwellings.....	46	47	52	59	68	75	80	81	74	61	53	45	741
Service buildings.....	54	56	62	69	78	84	88	89	82	69	59	52	842
Public utility.....	211	208	233	247	260	275	275	275	271	269	252	225	3,001
Railroad.....	22	16	22	23	25	25	26	27	27	30	30	26	299
Telephone and telegraph....	28	29	36	32	36	36	35	36	34	35	34	31	402
Other public utility.....	161	163	175	192	199	214	214	212	210	204	188	168	2,300
All other private.....	9	8	8	10	12	12	10	10	6	6	6	4	101
Public, total.....	416	352	435	506	561	647	658	685	698	688	612	485	6,723
Residential.....	35	27	28	27	25	26	22	24	25	27	28	27	321
Nonresidential building.....	151	148	164	176	191	187	187	195	208	223	208	199	2,237
Industrial.....	7	7	12	13	16	16	17	18	22	29	27	28	212
Educational.....	77	76	80	82	84	85	87	91	95	102	102	100	1,061
Hospital and institutional	37	36	38	40	41	40	40	42	40	39	38	36	467
Other nonresidential bldg..	30	29	34	41	50	46	43	44	51	53	41	35	497
Military facilities.....	10	8	8	9	8	9	10	15	20	27	25	22	171
Highway.....	104	65	115	163	193	272	289	298	296	261	214	97	2,367
Sewer and water.....	46	43	46	47	48	50	51	52	53	53	52	49	590
Miscellaneous public service enterprises.....	11	9	10	12	14	16	15	18	17	18	14	10	164
Conservation and development..	51	45	56	65	74	79	76	75	72	72	65	56	784
All other public.....	8	7	8	7	8	8	8	8	7	7	6	5	87





Table 17.—VALUE OF NEW CONSTRUCTION IN 1947-49 PRICES; BY MONTHS 1949-54—Continued  
[Millions of dollars]

Type of construction	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1953													
Total new construction	1,961	1,923	2,114	2,304	2,442	2,644	2,709	2,729	2,746	2,652	2,475	2,212	28,991
Private, total.....	1,360	1,318	1,440	1,559	1,650	1,777	1,787	1,792	1,775	1,741	1,681	1,553	19,433
Residential (excluding farm)	679	631	717	801	838	924	920	912	897	886	851	784	9,840
Nonresidential building.....	359	360	356	353	372	393	398	400	410	416	425	413	4,655
Industrial.....	165	167	162	157	155	149	141	139	142	143	143	144	1,807
Office buildings and ware- houses.....	45	44	43	44	47	49	52	57	61	64	67	67	640
Stores, restaurants and garages.....	48	51	54	53	62	79	85	83	84	84	91	83	857
Other nonresidential bldg.	101	98	97	99	108	116	120	121	123	125	124	119	1,351
Farm construction.....	99	101	110	121	139	149	155	157	145	119	101	88	1,484
Operators' dwellings.....	47	48	52	57	66	70	73	75	69	57	48	42	704
Service buildings.....	52	53	58	64	73	79	82	82	76	62	53	46	780
Public utility.....	217	220	251	277	292	301	304	315	315	312	297	261	3,302
Railroad.....	24	23	29	32	30	31	31	32	33	34	34	30	363
Telephone and telegraph..	37	38	49	42	42	42	42	40	39	43	40	37	481
Other public utility.....	156	159	183	203	220	228	231	243	243	235	223	194	2,518
All other private.....	6	6	6	7	9	10	10	8	8	8	7	7	92
Public, total.....	621	605	674	745	792	867	922	937	971	911	794	659	9,498
Residential.....	39	40	39	41	41	42	38	36	38	38	35	32	459
Nonresidential buildings.....	275	268	301	303	301	306	301	302	306	302	284	282	3,531
Industrial.....	113	108	135	130	128	130	123	120	118	113	106	110	1,434
Educational.....	108	109	110	113	114	115	118	118	122	126	123	121	1,397
Hospital and institutional	28	27	28	29	27	27	24	24	23	22	19	19	297
Other nonresidential bldg.	26	24	28	31	32	34	36	40	43	41	36	32	403
Military facilities.....	91	92	94	95	96	103	102	101	99	85	81	66	1,105
Highway.....	103	101	121	175	218	278	339	355	383	349	266	163	2,851
Sewer and water.....	51	49	53	56	57	58	61	62	63	60	57	54	681
Miscellaneous public service enterprises.....	10	8	9	11	12	12	14	16	17	15	13	9	146
Conservation and development	48	43	52	58	59	60	59	56	55	53	50	46	639
All other public.....	4	4	5	6	8	8	8	9	10	9	8	7	96
1954													
Total new construction	2,008	1,940	2,124	2,329	2,605	2,803	2,926	3,049	3,027	2,869	2,717	2,515	30,912
Private, total.....	1,389	1,336	1,452	1,578	1,734	1,853	1,932	1,988	1,988	1,953	1,903	1,828	20,934
Residential (excluding farm)	678	634	722	823	926	994	1,050	1,088	1,099	1,092	1,069	1,039	11,214
Nonresidential building.....	397	388	384	382	401	432	445	449	449	446	455	445	5,073
Industrial.....	147	146	144	140	135	135	131	132	135	142	149	154	1,690
Office buildings and ware- houses.....	63	62	59	58	60	63	66	72	71	72	73	70	789
Stores, restaurants and garages.....	72	67	67	67	79	93	99	97	96	89	89	83	998
Other nonresidential bldg.	115	113	114	117	127	141	149	148	147	143	144	138	1,596
Farm construction.....	88	92	99	110	126	135	141	143	131	107	90	79	1,341
Operators' dwellings.....	42	44	47	52	60	64	67	68	62	51	43	37	637
Service buildings.....	46	48	52	58	66	71	74	75	69	56	47	42	704
Public utility.....	221	217	242	257	274	284	287	299	300	299	280	256	3,216
Railroad.....	22	21	25	27	25	26	24	21	23	31	23	23	291
Telephone and telegraph..	36	38	43	44	46	46	45	45	44	44	43	40	514
Other public utility.....	163	158	174	186	203	212	218	233	233	224	214	193	2,411
All other private.....	5	5	5	6	7	8	9	9	9	9	9	9	90
Public, total.....	619	604	672	751	871	950	994	1,061	1,039	916	814	687	9,978
Residential.....	31	28	28	29	26	22	20	22	20	19	18	18	281
Nonresidential.....	291	287	301	312	320	330	338	350	328	312	293	281	3,743
Industrial.....	120	118	118	115	110	108	108	108	88	88	87	85	1,253
Educational.....	122	123	129	135	142	146	150	154	156	152	145	142	1,696
Hospital and institutional	19	19	22	26	27	28	27	29	26	24	22	20	289
Other nonresidential bldg.	30	27	32	36	41	48	53	59	58	48	39	34	505
Military facilities.....	62	58	63	67	66	76	76	82	83	85	80	74	872
Highway.....	128	128	165	218	326	383	418	462	471	370	302	202	3,573
Sewer and water.....	53	52	57	59	60	63	65	69	66	64	60	56	724
Miscellaneous public service enterprises.....	9	9	10	11	14	16	18	18	16	13	11	11	156
Conservation and development	37	34	39	45	49	50	49	47	46	44	42	38	520
All other public.....	8	8	9	10	10	10	10	11	9	9	8	7	109

Table 18.—NUMBER OF NEW NONFARM DWELLING UNITS STARTED, BY OWNERSHIP AND BY TYPE OF STRUCTURE, 1920-54

Period	Total nonfarm units	Privately owned units	Publicly owned units	Units in—		
				1-family structures	2-family structures	Multi-family structures
1920.....	247,000	247,000	0	202,000	24,000	21,000
1921.....	449,000	449,000	0	316,000	70,000	63,000
1922.....	716,000	716,000	0	437,000	146,000	133,000
1923.....	871,000	871,000	0	513,000	175,000	183,000
1924.....	893,000	893,000	0	534,000	173,000	186,000
1925.....	937,000	937,000	0	572,000	157,000	208,000
1926.....	849,000	849,000	0	491,000	117,000	241,000
1927.....	810,000	810,000	0	454,000	99,000	257,000
1928.....	753,000	753,000	0	436,000	78,000	239,000
1929.....	509,000	509,000	0	316,000	51,000	142,000
1930.....	330,000	330,000	0	227,000	29,000	74,000
1931.....	254,000	254,000	0	187,000	22,000	45,000
1932.....	134,000	134,000	0	118,000	7,000	9,000
1933.....	93,000	93,000	0	76,000	5,000	12,000
1934.....	126,000	126,000	0	109,000	5,000	12,000
1935.....	221,000	215,705	5,295	183,000	8,000	30,000
1936.....	319,000	304,225	14,775	244,000	14,000	61,000
1937.....	336,000	332,406	3,594	267,000	16,000	53,000
1938.....	406,000	399,294	6,706	317,000	18,000	71,000
1939.....	515,000	458,458	56,542	399,000	29,000	87,000
1940.....	602,600	529,571	73,029	485,700	37,300	79,600
1941.....	706,100	619,511	86,589	603,500	34,300	68,300
1942.....	356,000	301,191	54,809	292,800	20,100	43,100
1943.....	191,000	183,703	7,297	143,600	17,800	29,600
1944.....	141,800	138,692	3,108	117,700	10,600	13,500
1945.....	209,300	208,059	1,241	184,600	8,800	15,900
1946.....	670,500	662,473	8,027	590,000	24,300	56,200
1947.....	849,000	845,560	3,440	740,200	33,900	74,900
1948.....	931,600	913,500	18,100	766,600	46,900	118,100
1949.....	1,025,100	988,800	36,300	794,300	36,500	194,300
1950.....	1,396,000	1,352,200	43,800	1,154,100	44,800	197,100
1951.....	1,091,300	1,020,100	71,200	900,100	40,400	150,800
1952.....	1,127,000	1,068,500	58,500	942,500	45,900	138,600
1953.....	1,103,800	1,068,300	35,500	937,800	41,500	124,500
1954.....	1,220,400	1,201,700	18,700	1,077,900	34,200	108,300
1954:						
January.....	66,400	65,100	1,300	53,100	2,200	11,100
February.....	75,200	73,900	1,300	64,700	2,300	8,200
March.....	95,200	93,200	2,000	83,200	2,800	9,200
April.....	107,700	106,500	1,200	96,100	3,100	8,500
May.....	108,500	107,400	1,100	97,700	3,000	7,800
June.....	116,500	112,600	3,900	102,000	2,900	11,600
July.....	116,000	112,900	3,100	101,600	3,100	11,300
August.....	114,300	113,000	1,300	103,000	3,100	8,200
September.....	115,700	113,400	2,300	103,900	3,100	8,700
October.....	110,700	110,500	200	100,300	2,700	7,700
November.....	103,600	103,300	300	92,800	2,800	8,000
December.....	90,600	89,900	700	79,500	3,100	8,000

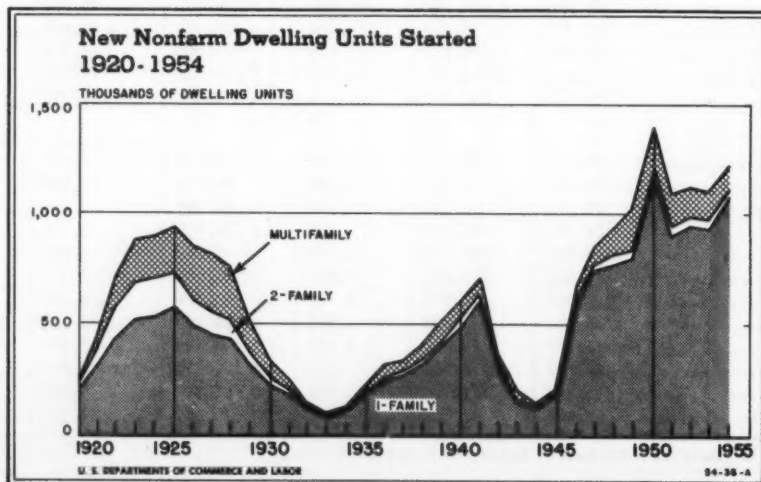
Source: U. S. Department of Labor, Bureau of Labor Statistics.

Table 19.—FLOOR AREA FOR SELECTED TYPES OF NONRESIDENTIAL BUILDINGS, 1925-54

[Thousands of square feet]

Year	Commercial	Industrial	Educational and science	Hospital and institutional	Public administration	Religious	Social and recreational
1925.....	160,066	66,901	60,543	14,037	8,294	18,870	32,261
1926.....	152,357	75,705	53,757	14,790	7,857	16,370	30,434
1927.....	141,815	68,131	53,917	13,802	9,943	17,192	33,520
1928.....	159,192	92,902	61,490	20,004	11,298	15,398	28,012
1929.....	161,264	105,524	58,639	19,496	12,626	12,818	21,457
1930.....	96,586	48,019	56,956	19,121	17,023	10,864	16,099
1931.....	50,037	20,109	36,598	16,880	24,257	5,578	14,018
1932.....	23,884	9,048	13,710	7,319	16,198	3,518	5,535
1933.....	22,551	18,985	5,523	5,598	9,474	2,633	5,606
1934.....	28,261	17,566	16,775	4,222	9,425	2,650	6,532
1935.....	35,391	20,638	26,046	6,176	13,522	3,534	7,909
1936.....	57,178	40,291	41,985	10,369	14,282	4,312	12,852
1937.....	62,283	60,816	36,489	11,411	12,464	5,730	13,544
1938.....	41,789	25,246	57,022	17,235	15,564	5,303	17,691
1939.....	48,798	44,268	34,418	11,593	15,121	6,213	12,371
1940.....	66,588	94,772	24,761	14,401	11,869	7,108	11,910
1941.....	105,851	187,923	24,499	15,394	14,453	8,567	14,761
1942.....	74,079	446,055	30,586	34,083	19,806	3,477	23,326
1943.....	22,171	105,822	11,969	19,947	4,754	1,001	12,862
1944.....	12,490	84,356	9,797	7,637	1,999	1,420	5,096
1945.....	63,197	158,207	12,453	11,331	1,858	4,599	8,097
1946.....	118,563	235,238	25,883	15,245	2,211	8,404	11,292
1947.....	100,043	142,990	41,042	19,915	6,320	12,282	14,235
1948.....	100,602	109,693	72,345	35,487	6,194	21,162	21,972
1949.....	86,446	61,143	79,048	42,076	7,726	24,598	20,992
1950.....	122,430	114,860	110,554	44,526	9,456	29,371	24,219
1951.....	77,214	148,231	109,480	37,881	10,800	25,133	11,255
1952.....	82,072	114,823	106,717	26,177	14,698	22,295	11,723
1953.....	122,904	111,687	124,245	22,868	13,056	27,714	17,316
1954.....	137,505	100,200	154,104	27,713	15,814	33,872	18,908

Source: F. W. Dodge Corporation, contract award data for 37 eastern States.



## Section IV - CONTRACT AWARDS

### INTRODUCTION

The volume of contracts awarded currently, together with dwelling units started, indicates future expenditures for work put in place. The series given in this section, and the housing starts series shown in Section III, are some of the basic source data from which construction value estimates are made (with adjustments discussed in Appendix B). Each of the separate contract award series overlaps and to some extent duplicates the other.

### CONSTRUCTION CONTRACTS AWARDED IN 37 STATES

Contract award statistics appearing in tables 20 and 21 are compiled by the Statistical and Research Division of the F. W. Dodge Corporation from field reports of individual project contracts in the 37 States east of the Rocky Mountains, as a byproduct of the Corporation's daily construction news reporting service. Reports include all areas other than farm, although coverage is generally less complete on low cost projects in rural non-farm areas than in urban areas.

Data include new construction, additions, and major alteration projects. No maintenance work is included. A negligible part of farm building construction is included. In general, force account work is included only when executed with materials earmarked for specific projects at time of purchase. Both private and public projects are included.

### CONTRACTS AWARDED FOR STATE AND LOCAL PUBLIC CONSTRUCTION

State and local contract award data represent the value of work placed under contract by State, county, municipal, or other local governmental units. Projects under Federal-aid programs are included.

The major source of data for the 37 Eastern States and the District of Columbia is the F. W. Dodge Corporation; data for the 11 Western States are from the Engineering News-Record, Daily Pacific Builder, Daily Construction Service, and other news sources. These figures are not adjusted for undercoverage. Data covering highway projects are from the Bureau of Public Roads.

Table 20.—CONSTRUCTION CONTRACTS AWARDED IN 37 EASTERN STATES, 1925-54

[Millions of dollars]

Year	Total construction	Building			Engineering		
		Total	Residential	Non-residential	Total	Public works	Utilities
1925.....	6,006	4,949	2,747	2,202	1,057	654	403
1926.....	6,381	5,089	2,671	2,418	1,292	780	512
1927.....	6,303	5,012	2,573	2,439	1,291	973	318
1928.....	6,628	5,226	2,788	2,438	1,402	985	417
1929.....	5,751	4,341	1,916	2,425	1,410	940	470
1930.....	4,523	2,923	1,101	1,822	1,600	970	630
1931.....	3,093	1,952	811	1,141	1,141	881	260
1932.....	1,351	768	280	488	583	521	62
1933.....	1,256	667	249	418	589	504	85
1934.....	1,543	800	249	551	743	632	111
1935.....	1,845	1,160	479	681	685	589	96
1936.....	2,675	1,761	801	960	914	722	192
1937.....	2,913	2,061	905	1,156	852	589	263
1938.....	3,197	2,058	986	1,072	1,139	850	289
1939.....	3,551	2,300	1,334	966	1,251	962	289
1940.....	4,004	2,892	1,597	1,295	1,112	831	281
1941.....	6,007	4,269	1,954	2,315	1,738	1,109	629
1942.....	8,255	5,715	1,818	3,897	2,540	1,302	1,238
1943.....	3,274	2,292	868	1,424	982	471	511
1944.....	1,994	1,247	348	899	747	430	317
1945.....	3,299	2,413	563	1,850	886	483	403
1946.....	7,490	5,858	3,142	2,716	1,632	1,195	437
1947.....	7,760	5,870	3,154	2,716	1,890	1,344	546
1948.....	9,430	7,275	3,608	3,667	2,155	1,627	528
1949.....	10,359	7,883	4,239	3,644	2,476	1,779	697
1950.....	14,501	11,923	6,741	5,182	2,578	1,930	648
1951.....	15,751	13,028	6,205	6,823	2,723	1,824	899
1952.....	16,775	13,367	6,668	6,699	3,408	2,267	1,141
1953.....	17,443	13,435	6,479	6,956	4,008	2,808	1,200
1954.....	19,770	15,629	8,518	7,111	4,141	3,094	1,047

Source: F. W. Dodge Corporation.



Table 21.—CONSTRUCTION CONTRACTS AWARDED IN 37 EASTERN STATES, BY MONTHS, 1949-54

[Millions of dollars]

Year and month	Total construction	Building			Engineering		
		Total	Residential	Non-residential	Total	Public works	Utilities
1949:							
January.....	483	381	159	222	102	75	27
February.....	568	415	193	222	153	117	36
March.....	748	579	251	328	169	121	48
April.....	842	620	304	316	222	169	53
May.....	880	667	346	321	213	179	34
June.....	946	707	371	336	239	176	63
July.....	944	691	341	350	253	207	46
August.....	905	671	393	278	234	174	60
September.....	1,094	871	526	345	223	172	51
October.....	1,062	858	501	357	204	129	75
November.....	958	701	435	266	257	126	131
December.....	929	722	419	303	207	134	73
1950:							
January.....	731	579	344	235	152	86	66
February.....	780	627	361	266	153	120	33
March.....	1,300	1,075	575	500	225	184	41
April.....	1,350	1,123	674	449	227	177	50
May.....	1,348	1,083	674	409	265	199	66
June.....	1,345	1,072	628	444	273	222	51
July.....	1,420	1,162	675	487	258	209	49
August.....	1,549	1,295	754	541	254	201	53
September.....	1,287	1,049	550	499	238	146	92
October.....	1,136	957	530	427	179	120	59
November.....	1,087	932	497	435	155	106	49
December.....	1,168	969	479	490	199	160	39
1951:							
January.....	1,043	881	420	461	162	129	33
February.....	1,141	962	531	431	179	124	55
March.....	1,267	1,044	575	469	223	166	57
April.....	1,375	1,109	591	518	266	183	83
May.....	<sup>1</sup> 2,573	2,295	661	1,634	278	187	91
June.....	1,409	1,098	545	553	311	184	127
July.....	1,380	1,085	548	537	295	191	104
August.....	1,263	1,044	568	476	219	160	59
September.....	1,083	885	480	405	198	141	57
October.....	1,051	914	496	418	137	102	35
November.....	932	772	444	328	160	118	42
December.....	1,234	939	346	593	295	139	156

<sup>1</sup> All time high.

Source: F. W. Dodge Corporation.

Table 21.—CONSTRUCTION CONTRACTS AWARDED IN 37 EASTERN STATES, BY MONTHS, 1949-54—Continued

[Millions of dollars]

Year and month	Total construction	Building			Engineering		
		Total	Residential	Non-residential	Total	Public works	Utilities
1952:							
January.....	902	695	338	357	207	131	76
February.....	885	698	396	302	187	125	62
March.....	1,321	1,056	593	463	265	194	71
April.....	1,598	1,244	682	562	354	242	112
May.....	1,564	1,217	754	463	347	220	127
June.....	1,489	1,133	582	551	356	246	110
July.....	1,511	1,171	608	563	340	243	97
August.....	1,439	1,148	628	520	291	209	82
September.....	2,039	1,791	519	1,272	248	176	72
October.....	1,311	1,073	602	471	238	152	86
November.....	1,249	990	528	462	259	195	64
December.....	1,467	1,151	438	713	316	134	182
1953:							
January.....	1,076	867	460	407	209	153	56
February.....	1,021	793	419	374	228	135	93
March.....	1,347	1,054	605	449	293	219	74
April.....	1,742	1,354	674	680	388	294	94
May.....	1,606	1,220	638	582	386	288	98
June.....	1,115	922	463	459	193	138	55
July.....	1,793	1,418	653	765	375	269	106
August.....	1,414	1,053	507	546	361	305	56
September.....	1,742	1,291	508	783	451	270	181
October.....	1,893	1,393	635	758	500	270	230
November.....	1,394	1,096	484	612	298	240	58
December.....	1,300	974	433	541	326	227	99
1954:							
January.....	1,152	935	462	473	217	135	82
February.....	1,221	977	509	468	244	192	52
March.....	1,528	1,200	668	532	328	210	118
April.....	1,692	1,402	796	606	290	219	71
May.....	1,925	1,497	825	672	428	324	104
June.....	1,733	1,377	720	657	356	287	69
July.....	1,837	1,387	745	642	450	352	98
August.....	1,573	1,244	693	551	329	262	67
September.....	1,816	1,424	777	647	392	293	99
October.....	1,965	1,523	852	671	442	342	100
November.....	1,499	1,200	709	491	299	205	94
December.....	1,829	1,463	782	701	366	273	93

Source: F. W. Dodge Corporation.

Table 22.—CONTRACTS AWARDED FOR STATE AND LOCAL PUBLIC CONSTRUCTION, BY TYPE OF CONSTRUCTION 1946-54

[Millions of dollars]

	Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1946													
Grand total.....	1,660.1	53.4	60.2	111.1	132.2	162.5	170.3	165.9	190.3	196.0	164.3	132.0	121.9
Residential.....	94.5	.9	.5	2.5	3.2	4.7	10.4	12.4	6.1	25.1	13.3	6.4	9.0
Nonresidential.....	238.2	10.8	9.0	16.8	13.2	25.0	23.5	22.8	30.5	24.6	20.4	22.0	19.6
Educational.....	124.5	5.1	4.5	8.9	8.0	12.9	11.8	13.3	16.2	12.7	8.8	10.7	11.6
Hospital & institutional	34.4	1.3	2.5	2.7	2.1	3.8	3.7	2.9	3.9	2.7	3.5	4.0	1.3
Administrative & general	17.8	1.5	.3	2.6	.7	1.6	1.0	.4	2.2	.9	1.2	4.7	.7
Other <sup>1</sup> .....	61.5	2.9	1.7	2.6	2.4	6.7	7.0	6.2	8.2	8.3	6.9	2.6	6.0
Highways.....	928.2	30.7	29.4	53.1	89.2	107.0	112.1	101.0	110.1	90.3	89.6	59.1	56.6
Sewerage systems.....	140.3	2.8	8.6	10.5	6.7	11.6	13.5	13.9	19.0	22.7	10.4	12.3	8.3
Water supply facilities..	128.1	4.6	4.6	22.1	6.8	7.9	5.2	6.8	13.0	17.6	10.2	12.3	17.0
Utilities.....	106.4	3.4	7.9	5.6	11.9	5.2	5.1	5.5	6.3	12.2	17.3	16.6	9.4
Electric power.....	35.2	2.6	1.4	3.1	1.4	1.5	2.3	2.7	2.4	5.1	4.3	4.7	3.7
Other utilities <sup>2</sup> .....	71.2	.8	6.5	2.5	10.5	3.7	2.8	2.8	3.9	7.1	13.0	11.9	5.7
All other <sup>3</sup> .....	24.4	.2	.2	.5	1.2	1.1	.5	3.5	5.3	3.5	3.1	3.3	2.0
1947													
Grand total.....	2,355.1	120.8	104.7	159.7	195.8	230.3	205.9	218.8	223.4	222.2	237.0	249.3	187.2
Residential.....	171.5	14.2	16.9	9.6	6.7	28.3	14.1	8.1	7.8	19.5	16.4	12.8	17.1
Nonresidential.....	532.3	26.6	16.0	32.7	30.2	44.4	45.7	46.7	59.6	54.0	59.0	62.1	55.3
Educational.....	315.1	9.2	8.6	20.6	17.0	23.4	32.7	29.4	33.6	31.8	39.8	37.2	31.8
Hospital & institutional	67.3	11.9	1.4	2.8	4.1	6.0	1.6	3.4	3.0	6.9	6.3	10.5	9.4
Administrative & general	46.9	.7	2.5	2.9	3.9	3.8	3.3	4.6	3.6	5.0	6.4	4.4	5.8
Other <sup>1</sup> .....	103.0	4.8	3.5	6.4	5.2	11.2	8.1	9.3	19.4	10.3	6.5	10.0	8.3
Highways.....	1,096.0	41.7	50.6	69.0	119.9	106.4	108.2	115.4	113.7	107.4	104.1	74.5	85.1
Sewerage system.....	188.8	9.2	9.5	7.9	11.9	18.5	17.2	14.1	17.1	14.3	14.8	45.1	9.2
Water supply facilities..	158.3	9.5	4.2	20.1	7.1	9.1	7.2	11.9	11.1	7.5	18.7	42.9	9.0
Utilities.....	142.7	16.4	4.5	17.7	16.7	15.3	8.2	16.2	6.8	14.6	15.0	5.8	5.5
Electric power.....	58.1	9.5	2.8	5.3	4.3	4.4	4.3	4.5	2.6	10.4	4.4	3.0	2.6
Other utilities <sup>2</sup> .....	84.6	6.9	1.7	12.4	12.4	10.9	3.9	11.7	4.2	4.2	10.6	2.8	2.9
All other <sup>3</sup> .....	65.5	3.2	3.0	2.7	3.3	8.3	5.3	6.4	7.3	4.9	9.0	6.1	6.0
1948													
Grand total.....	3,564.9	179.0	195.7	233.3	294.5	335.4	315.4	395.5	356.2	340.0	332.9	277.6	309.4
Residential <sup>1</sup> .....	190.0	13.4	1.4	2.0	7.1	22.1	3.5	22.2	12.4	20.6	35.0	42.9	7.4
Nonresidential.....	1,179.0	58.6	60.5	72.5	103.0	91.3	110.3	139.1	109.9	116.4	114.8	92.2	110.4
Educational.....	705.0	35.8	39.9	45.2	61.2	60.8	60.5	92.6	61.8	68.0	57.7	54.0	67.5
Hospital & institutional	200.2	9.0	9.1	9.5	17.0	11.4	22.9	21.3	15.7	18.7	24.5	24.7	16.4
Administrative & general	105.5	6.4	6.4	7.7	8.5	5.5	6.0	8.7	10.5	19.0	11.2	6.6	9.0
Other <sup>1</sup> .....	168.3	7.4	5.1	10.1	16.3	13.6	20.9	16.5	21.9	10.7	21.4	6.9	17.5
Highways.....	1,428.2	69.1	92.0	110.0	117.4	143.8	151.4	148.5	145.9	122.4	111.7	85.4	130.6
Sewerage systems.....	289.0	11.4	17.5	20.2	32.6	22.4	16.7	35.7	30.1	26.1	30.4	25.4	20.5
Water supply facilities..	240.0	8.1	9.3	11.6	16.0	38.3	12.1	25.5	31.9	24.4	19.4	16.6	26.8
Utilities.....	172.0	13.9	12.1	12.5	12.0	13.6	10.6	18.6	19.5	23.2	15.8	11.4	8.8
Electric power.....	46.8	8.3	4.1	1.2	4.0	3.2	3.3	2.7	3.5	5.7	3.2	4.9	2.7
Other utilities.....	125.2	5.6	8.0	11.3	8.0	10.4	7.3	15.9	16.0	17.5	12.6	6.5	6.1
All other <sup>3</sup> .....	66.7	4.5	2.9	4.5	6.4	3.9	10.8	5.9	6.5	6.9	5.8	3.7	4.9

See footnotes at end of table.

Table 22.—CONTRACTS AWARDED FOR STATE AND LOCAL PUBLIC CONSTRUCTION, BY TYPE OF CONSTRUCTION 1946-54—Con.

[Millions of dollars]

	Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1949													
Grand total.....	4,102.8	252.1	197.0	336.9	378.4	387.8	388.8	492.3	392.0	341.8	318.7	296.0	321.0
Residential.....	357.5	54.9	7.5	56.2	27.2	13.1	40.2	35.6	42.0	17.1	25.4	16.0	22.3
Nonresidential.....	1,515.1	90.7	81.6	126.7	142.9	148.5	154.1	175.7	116.8	115.0	119.3	120.2	123.6
Educational.....	853.3	44.3	47.1	73.6	59.4	90.9	83.0	97.4	74.3	64.5	78.6	70.1	70.1
Hospital & institutional	339.9	28.4	15.6	18.3	62.5	25.1	49.0	40.3	19.3	27.4	17.7	12.2	24.1
Administrative & general	117.6	6.4	5.4	13.3	5.8	5.7	7.7	20.5	7.1	9.2	6.7	23.9	5.9
Other <sup>1</sup> .....	204.3	11.6	13.5	21.5	15.2	26.8	14.4	17.5	16.1	13.9	16.3	14.0	23.5
Highways.....	1,438.1	73.2	66.8	91.6	124.7	151.0	140.1	152.7	170.6	149.0	108.6	90.4	119.4
Sewerage systems.....	312.4	13.2	14.5	20.2	29.0	35.5	23.9	38.6	27.0	20.5	34.2	35.7	20.1
Water supply facilities...	245.9	8.4	10.4	17.3	24.9	24.3	13.2	56.6	10.9	22.0	16.9	18.3	22.7
Utilities.....	151.2	8.2	9.3	19.1	15.7	9.3	12.1	23.3	17.0	11.2	8.8	8.9	8.3
Electric power.....	58.4	2.7	4.3	11.1	5.9	3.1	1.6	6.7	10.2	4.2	2.5	1.8	4.3
Other utilities <sup>2</sup> .....	92.8	5.5	5.0	8.0	9.8	6.2	10.5	16.6	6.8	7.0	6.3	7.1	4.0
All other.....	82.6	3.5	6.9	5.8	14.0	6.1	5.2	9.8	7.7	7.0	5.5	6.5	4.6
1950													
Grand total.....	4,946.2	224.2	277.5	341.7	386.5	432.7	512.4	505.8	499.4	486.8	363.4	439.0	476.8
Residential.....	431.9	17.9	7.9	14.2	27.1	30.7	22.1	44.1	41.0	43.0	36.1	33.7	114.1
Nonresidential.....	1,887.7	82.2	97.0	134.1	142.7	160.7	193.7	201.5	197.1	186.5	149.2	181.2	161.8
Educational.....	1,180.5	54.4	61.2	83.5	91.0	96.8	118.9	126.3	120.7	119.5	92.0	109.1	107.1
Hospital & institutional	337.5	6.9	16.3	21.9	23.8	28.6	42.9	33.6	29.2	36.5	26.9	44.3	26.6
Administrative & general	158.8	6.8	6.6	12.2	11.7	10.7	14.0	17.4	22.4	10.5	17.5	12.4	16.6
Other <sup>1</sup> .....	210.9	14.1	12.9	16.5	16.2	24.6	17.9	24.2	24.8	20.0	12.8	15.4	11.5
Highways.....	1,803.1	73.5	112.2	132.1	158.3	183.0	228.3	179.4	154.5	183.8	108.2	156.1	133.7
Sewerage system.....	357.5	18.8	19.4	28.5	22.6	23.8	31.9	39.0	41.7	27.7	41.4	34.3	28.4
Water supply facilities...	227.9	13.9	29.8	17.4	20.0	14.4	17.5	16.4	29.2	19.2	14.5	16.9	18.7
Utilities.....	170.1	12.3	8.3	7.9	8.3	15.9	14.0	18.3	27.3	20.5	7.7	13.4	16.2
Electric power.....	47.7	1.1	3.2	3.9	2.7	2.9	3.6	5.8	4.6	5.9	1.7	3.7	8.6
Other utilities <sup>2</sup> .....	122.4	11.2	5.1	4.0	5.6	13.0	10.4	12.5	22.7	14.6	6.0	9.7	7.6
All other <sup>3</sup> .....	68.0	5.6	2.9	7.5	7.5	4.2	4.9	7.1	8.6	6.1	6.3	3.4	3.9
1951													
Grand total.....	5,068.2	363.8	308.5	432.6	387.3	444.9	687.8	538.7	431.5	382.1	355.0	336.7	399.3
Residential.....	638.3	51.9	40.5	47.2	26.0	40.4	255.5	85.6	10.4	6.5	12.8	18.7	42.8
Nonresidential.....	1,960.5	145.7	106.7	171.7	165.0	178.2	188.9	222.8	183.3	151.2	151.1	139.8	156.1
Educational.....	1,362.4	95.7	73.0	121.9	121.3	134.4	123.6	131.6	128.0	96.9	110.0	100.5	125.5
Hospital & institutional	328.4	26.7	12.0	19.3	24.0	27.0	33.2	53.9	35.6	39.2	19.1	22.7	15.7
Administrative & general	124.3	9.5	8.6	17.2	7.6	8.4	14.0	19.0	9.8	6.7	5.5	10.1	7.9
Other <sup>1</sup> .....	145.4	13.8	13.1	13.3	12.1	8.4	18.1	18.3	9.9	8.4	16.5	6.5	7.0
Highways.....	1,683.1	111.9	97.8	124.4	110.8	157.9	187.0	177.9	186.6	161.1	134.9	119.9	122.9
Sewerage systems.....	344.6	26.1	24.2	26.4	34.0	31.5	25.3	27.2	21.6	38.2	27.0	24.9	38.2
Water supply facilities...	229.0	15.3	27.0	27.8	23.6	21.3	16.5	14.1	14.4	9.9	15.5	21.0	22.6
Utilities.....	153.8	9.0	9.7	30.8	22.9	9.9	8.7	7.5	10.1	11.4	9.9	9.7	14.2
Electric power.....	74.5	2.5	2.3	24.6	18.4	5.7	2.2	1.5	3.6	3.1	4.1	1.1	5.4
Other utilities.....	79.3	6.5	7.4	6.2	4.5	4.2	6.5	6.0	6.5	8.3	5.8	8.6	8.8
All other <sup>3</sup> .....	48.9	3.9	2.6	4.3	5.0	5.7	5.9	3.6	5.1	3.8	3.8	2.7	2.5

See footnotes at end of table.

Table 22.—CONTRACTS AWARDED FOR STATE AND LOCAL PUBLIC CONSTRUCTION, BY TYPE OF CONSTRUCTION 1946-54—Con.  
[Millions of dollars]

	Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	1952												
Grand total.....	5,389.0	331.0	333.0	491.0	538.0	540.0	542.0	499.0	479.0	400.0	444.0	370.0	422.0
Residential.....	613.0	51.0	66.0	148.0	87.0	52.0	24.0	24.0	18.0	33.0	28.0	30.0	52.0
Nonresidential.....	1,948.0	115.0	119.0	146.0	177.0	191.0	206.0	191.0	162.0	138.0	178.0	145.0	180.0
Educational.....	1,351.0	82.0	95.0	107.0	127.0	133.0	128.0	120.0	123.0	104.0	114.0	89.0	129.0
Hospital & institutional	279.0	20.0	10.0	18.0	29.0	35.0	35.0	37.0	12.0	11.0	22.0	36.0	14.0
Administrative & general	168.0	3.0	5.0	14.0	12.0	13.0	22.0	19.0	10.0	10.0	29.0	12.0	19.0
Other <sup>1</sup> .....	150.0	10.0	9.0	7.0	9.0	10.0	21.0	15.0	17.0	13.0	13.0	8.0	18.0
Highways.....	2,040.0	106.0	106.0	135.0	214.0	216.0	238.0	208.0	224.0	166.0	154.0	135.0	138.0
Sewerage systems.....	362.0	21.0	20.0	23.0	33.0	27.0	36.0	41.0	36.0	26.0	42.0	35.0	22.0
Water supply facilities...	227.0	23.0	12.0	30.0	13.0	26.0	17.0	14.0	24.0	11.0	23.0	15.0	19.0
Utilities.....	137.0	12.0	7.0	6.0	10.0	20.0	15.0	14.0	10.0	20.0	12.0	5.0	6.0
Electric power.....	52.0	4.0	4.0	3.0	2.0	11.0	3.0	4.0	4.0	11.0	2.0	2.0	2.0
Other utilities <sup>2</sup> .....	85.0	8.0	3.0	3.0	8.0	9.0	12.0	10.0	6.0	9.0	10.0	3.0	4.0
All other.....	62.0	3.0	3.0	3.0	4.0	8.0	6.0	7.0	5.0	6.0	7.0	5.0	5.0
	1953												
Grand total.....	6,316.6	332.6	301.9	515.1	580.3	623.8	620.3	598.3	577.8	569.6	511.0	483.1	602.8
Residential.....	331.5	21.9	41.3	80.9	38.7	26.4	25.0	12.6	13.9	31.8	11.0	16.0	12.0
Nonresidential.....	2,258.7	125.3	121.1	167.7	211.3	207.6	176.6	218.5	199.8	179.8	220.6	195.4	235.0
Educational.....	1,629.3	86.6	84.3	134.2	159.4	165.2	149.8	159.0	125.4	140.7	144.3	124.3	156.1
Hospital & institutional	237.3	11.9	10.6	13.8	11.4	10.7	7.5	11.8	43.9	18.1	26.6	27.3	43.7
Administrative & general	147.8	5.1	5.5	4.2	11.8	11.1	6.9	14.8	17.4	7.4	24.3	20.1	19.2
Other <sup>1</sup> .....	244.3	21.7	20.7	15.5	28.7	20.6	12.4	32.9	13.1	13.6	25.4	23.7	16.0
Highways.....	2,662.8	117.9	96.3	197.7	256.0	274.7	288.6	251.3	261.0	236.6	205.0	197.1	280.6
Sewerage system.....	469.4	21.2	16.2	19.7	37.0	61.2	87.2	44.9	28.2	63.4	29.6	23.0	37.8
Water supply facilities...	282.7	17.3	15.4	26.0	18.4	26.4	16.9	25.0	43.0	31.3	16.4	29.9	16.7
Utilities.....	185.3	25.1	6.9	9.8	8.9	14.8	12.3	32.3	11.6	16.6	17.9	14.1	15.0
Electric power.....	72.4	14.7	1.6	3.3	5.1	5.5	3.6	16.1	2.3	3.2	11.0	2.4	3.6
Other utilities <sup>2</sup> .....	112.9	10.4	5.3	6.5	3.8	9.3	8.7	16.2	9.3	13.4	6.9	11.7	11.4
All other <sup>3</sup> .....	126.2	3.9	4.7	13.3	10.0	12.7	13.7	13.7	20.3	10.1	10.5	7.6	5.7
	1954												
Grand total.....	6,888.1	419.1	386.8	553.1	578.1	583.7	738.6	718.8	583.3	614.4	597.7	473.3	641.2
Residential.....	254.6	18.1	12.6	28.0	14.5	18.5	42.6	37.5	22.1	28.7	10.1	12.1	9.8
Nonresidential.....	2,870.7	175.0	185.2	266.6	227.1	243.7	294.6	292.5	248.6	261.4	225.7	203.6	246.7
Educational.....	2,077.9	125.5	135.4	174.5	171.1	195.4	214.5	206.9	185.4	177.8	165.6	153.0	172.8
Hospital & institutional	246.4	14.5	28.4	12.9	19.4	18.8	20.4	37.4	19.5	22.5	14.7	16.1	21.8
Administrative & general	253.5	22.4	9.7	13.8	19.3	16.2	37.1	20.3	24.8	39.2	23.0	12.9	14.8
Other <sup>1</sup> .....	292.9	12.6	11.7	65.4	17.3	13.3	22.6	27.9	18.9	21.9	22.4	21.6	37.3
Highways.....	2,684.7	169.1	142.5	171.0	223.4	225.5	299.8	292.7	226.0	240.9	243.9	179.7	270.2
Sewerage systems.....	472.7	25.2	18.2	45.4	54.0	35.8	47.4	46.4	36.3	37.1	64.3	29.3	33.3
Water supply facilities...	292.7	16.9	18.6	16.9	27.6	35.6	24.3	24.8	23.2	25.5	26.7	23.7	28.9
Utilities.....	197.4	10.4	6.5	17.6	17.7	11.5	21.9	13.7	17.0	12.4	10.5	15.8	42.4
Electric power.....	105.3	3.0	1.9	9.8	15.3	4.2	6.0	7.1	12.3	3.3	3.4	11.6	27.4
Other utilities.....	92.1	7.4	4.6	7.8	2.4	7.3	15.9	6.6	4.7	9.1	7.1	4.2	15.0
All other <sup>3</sup> .....	115.3	4.4	3.2	7.6	13.8	13.1	8.0	11.2	10.1	8.4	16.5	9.1	9.9

<sup>1</sup> Includes social and recreational buildings and other miscellaneous nonresidential buildings.<sup>2</sup> Includes: Waterfront development, local transit, airfield buildings and other miscellaneous utilities.<sup>3</sup> Includes: Conservation and development projects, parks and playgrounds and all other miscellaneous nonbuilding.



## Appendix A—DEFINITIONS OF TYPES OF CONSTRUCTION

Construction covers the erection, maintenance, and repair of immobile structures and utilities together with service facilities which become integral parts of structures and are essential to their use for any general purpose. Structures include buildings, dams, storage reservoirs, levees, canals, docks, refineries, storage tanks and silos, highways, airfields, bridges, tunnels, railroads and street railways, roadways, tracks, water and signal towers, and all similar work which results in substantial changes in the earth's topography. Utilities include electric light and power transmission and distribution lines; petroleum and gas pipelines and distribution lines; telephone and telegraph lines; radio, television, and radar towers; water supply lines; sewers; and all similar installations above or below ground for the purpose of supplying utility services.

Service facilities included in construction cover those types of immobile equipment which when installed become an integral part of the structure and are necessary to any general use of the structure. Plumbing, heating, air conditioning and lighting equipment, elevators and escalators, are examples of service facilities which are considered a part of construction. In general, construction does not include the procurement of special purpose equipment designed to prepare the structure for a specific use. Examples of such equipment are steam tables in restaurants, pews in churches, lockers in school buildings, conveyor lines in factories, and refrigerators, ranges or dishwashers in homes. Furthermore, construction does not include the installation of such equipment, except when the installation involves structural changes and then only to the extent of such structural changes. Where a change in use involves structural changes, such as the erection of partitions in a loft building to convert it to office use, the making of such structural changes is construction. Likewise, any change in exterior walls, such as remodeling of a store front, is construction.

Clearing and development of land is a part of construction. If, however, an existing structure is demolished in the process, such demolition is not included in construction.

Drilling of oil, gas and water wells is not construction. Construction does not include the digging and shoring of mines; or work which is an integral part of farming operations such as plowing, terracing and the digging of drainage ditches.

Maintenance and repair of existing structures, utilities, and service facilities is construction.

Value of construction includes the cost of architectural and engineering fees, materials and service facilities installed, labor, overhead, and profit on construction operations. It does not include speculative profits, or the value of any equipment other than the types included in service facilities which are necessary for any general use of the structure or utility.

Estimates of the value of construction measure the value of work put in place on all structures and facilities under construction during a given period regardless of when work on each individual project was started. The value represents a summation of costs of materials actually incorporated into structures and facilities during the period regardless of when such materials were purchased or delivered to the site, costs of labor performed during the period, and proportionate allowances for overhead costs and profits on construction operations. Thus, the value in place estimates differ from the total value of contracts awarded during a given period and the total value of housing units started during the same period because the latter two items represent the total completed value of construction being undertaken currently. Only a small part of the project value may be put in place during the first month; with the balance shown in succeeding periods as work progresses.

Since most construction is done on order, sales costs and selling profits in the ordinary trade sense are uncommon. Insofar as selling costs and profits do arise in connection with housing construction done on a speculative basis, however, they are not included in the value of construction. The value of force account work (construction done by governmental agencies or nonconstruction firms with a separate work force—not under contract) is included in the value of construction. Estimates of the value of work done by owners or their families on their own homes or farm buildings, etc., likewise, are included.

New construction relates to the erection of new immobile structures and utilities, together with original service facilities which become integral parts of structures and are essential to their use for any general purpose. It includes structural additions and alterations, such as the conversion of a structure to a use other than its original purpose. Additions and alterations are estimated separately only for private residential building.

Maintenance and repairs relate to those expenditures applicable to the restoration of structures, utilities and service facilities. Repainting, repapering, reroofing, redredging, railroad maintenance-of-way and street and highway patching and minor resurfacing are included under the maintenance and repair designation.

The terms "improvement," "modernization," or "betterment" are not used in the Commerce definitions as they cut across the classification of construction activities in the preceding two paragraphs. That is, these terms may relate to either new construction, which includes additions and alterations, or to maintenance and repairs; but usually they refer to projects which include both categories.

The description which follows sets forth the general patterns followed in classifying various types of construction projects. The classifications can not be adhered to strictly because of lack of uniformity in the various sources of data and the fact that ultimate purposes of individual construction projects are not always clearly defined in the information that is available.

The distinction between private and public construction is made on the basis of ownership rather than source of funds. Thus private hospital and institutional construction includes work done under the National Hospital Program by private non-profit organizations which involves an element of Federal aid. Some other types of construction, likewise, involve state or local aid to projects owned by private nonprofit organizations which are included in the private construction category. To this extent, the public construction estimates do not account for all public expenditures on new construction.

## PRIVATE CONSTRUCTION

### Residential Building (nonfarm)

*New Dwelling Units.*—Includes new houses, apartments, and other privately-owned housekeeping dwellings of all types not located on farms. Prefabricated houses are included, if permanent and made of new materials. Temporary structures, units without housekeeping facilities, and such movable structures as trailers and houseboats are not included. Accommodations in transient hotels, dormitories, and clubhouses are not counted in the dwelling-unit figures. These are usually nonhousekeeping quarters and the buildings containing them are defined as "nonhousekeeping residential."

Coverage under new dwelling units excludes the remodeling of existing residential structures or the conversion of nonresidential buildings into housing which are classified under "Additions and alterations." Living quarters provided for superintendents, caretakers, or watchmen in warehouses and factories are excluded from residential building, since construction of the residence in these cases is incidental to the nonresidential building. On the other hand, the residential figures do include housekeeping dwelling units in buildings that also contain stores. In such cases the housing accommodations are at least as important as the stores and usually account for a major part of both the physical volume and value of the construction job.

*Additions and Alterations.*—Includes structural additions to or alterations of existing residential structures (including conversion of nonresidential buildings to residential use). Additions usually provide additional living space. Alterations may or may not provide more space, but they usually involve a conversion of space with respect to purpose or intensity of use.

*Nonhousekeeping.*—Includes buildings containing nonhousekeeping quarters such as transient hotels, dormitories, clubhouses and tourist courts and cabins.

### Nonresidential Building

As the construction estimates for private nonresidential buildings are derived basically from F. W. Dodge contract awards data, the Dodge classification is used for each type of construction in this category.

*Industrial Buildings.*—Includes manufacturing, assembly and warehouse buildings in chemical, food products, paper and pulp, refineries, printing and allied industries, stone-glass-clay products, rubber, textile, automobile, aircraft, iron and steel, other metal working, machinery manufacturing, lumber and wood working, and all similar processing and mechanical industries. Also includes refrigeration, ice and cold storage plants of warehouses and industrial grain elevators and storage silos, as well as dry cleaning plants, laundries and miscellaneous light manufacturing buildings.

*Office Buildings and Warehouses.*—Includes commercial warehouses and storage buildings (except cold storage, grain elevator and storage silos) and office and loft buildings, including banks, building and loan association buildings, film exchanges and insurance buildings. Offices, warehouses and other buildings constructed by public utilities are included in the total value of construction reported by the various utilities and are, therefore, not included in this category.

*Stores, Restaurants and Garages.*—Includes retail bakeries, barber shops, beauty parlors, cigar stores, department stores, dress shops, drug stores, food stores, show rooms and all other retail stores or shops; automats, bars, beer gardens, cabarets, cafes, cafeterias, diners, grill rooms, ice cream parlors, mess halls, road houses, roof gardens, tea rooms, taverns and all other restaurant or similar buildings; and public garages and auto service stations (gasoline, battery, greasing, etc.).

*Religious Buildings.*—Includes churches, sunday schools, tabernacles, synagogues, convents, monasteries, theological seminaries, funeral parlors, crematories, mausoleums, mission houses, novitiate buildings, cemetery vaults, etc.

*Educational Buildings.*—Includes grade schools, high schools, college buildings, libraries and museums, fine art buildings, educational and commercial laboratories and science buildings, observatories, planetariums, etc.

*Hospital and Institutional Buildings.*—Includes hospitals, clinics, infirmaries, sanitariums and bath houses for health treatments, institutions, insane asylums, orphan homes, old peoples homes, poor houses, etc.

*Social and Recreational Buildings.*—Includes assembly buildings, auditoriums, community houses, golf and country clubhouses, athletic and social clubs, lodges, theaters, music conservatories, radio broadcasting studios, gymnasiums, indoor stadiums, indoor arenas, indoor coliseums, indoor courts, natatoriums, locker buildings, Y.M.C.A., bath houses at beaches, bowling alleys, billiard rooms, dance halls, indoor rinks, exhibit buildings and other miscellaneous social and recreational buildings.

*Miscellaneous Nonresidential Buildings.*—Includes privately-owned post office buildings, comfort stations, rest rooms, fire stations, zoo buildings, animal hospitals-havens-pounds, private garages or boathouses when built as separate projects, greenhouses, refreshment road stands, boiler houses when built as separate projects, aircraft hangars and other miscellaneous nonresidential buildings.

### Farm

*Operators' Dwellings.*—Includes those residences of farm operators which are located on the farms operated.

*Service Buildings.*—Includes barns and other buildings used in production, dwellings other than operators' dwellings, and fences, windmills, and wells.

#### Public Utilities

*Railroad.*—All capital expenditures other than machinery chargeable to bridges, trestles, and culverts, elevated structures, fences, snowsheds, and signs, station and office buildings, roadway buildings, water stations, fuel stations, shops and enginehouses, coal and ore wharves, telegraph and telephone lines, signals, power plants, power-transmission systems, and miscellaneous structures.

*Local Transit.*—All capital expenditures other than machinery and equipment for "way and structures" for local transit companies, including subways, power plant and power line transmission.

*Petroleum Pipe Line.*—All capital expenditures other than machinery and equipment for gathering lines, trunk lines and general plant for common carriers of petroleum and its liquid products. Includes pipe lines, pumping stations, oil tanks, communication systems and buildings.

*Electric Light and Power.*—Capital expenditures for new construction or additions to existing production, transmission, distribution and general plants. Includes all structures, boiler plants, reservoirs, dams and waterways, towers, poles and underground conduit. Also includes cooperatives financed with Rural Electrification Administration funds.

*Gas.*—Capital expenditures for the construction of and additions to gas utility plants, both natural gas and manufactured gas. Includes production, transmission, underground storage, distribution and general facilities.

*Telephone.*—New construction expenditures for buildings and outside plant, including pole lines, underground and aerial plant, and drop and block wires. Central office and subscriber station equipment is excluded.

*Telegraph.*—New construction expenditures for buildings and outside plant, including pole lines, underground and aerial plant, wires, etc. Station equipment is excluded.

#### All Other Private

*Sewer and Water.*—Includes dams and reservoirs, filtration plants, mains and buildings.

*Other.*—Includes private roads and bridges and miscellaneous non-structural items such as parks and playgrounds.

#### NON-FEDERAL PUBLIC CONSTRUCTION

In general, the classification of non-Federal public construction projects is on a functional basis similar to private nonresidential buildings. However, the basic source data available afford identification of the majority of large contracts in the non-Federal public category. This makes possible a more homogeneous classification of construction work, in that it permits the grouping of dissimilar and separate components of a large project into the proper classification based on the intended purpose of the construction.

#### Residential Buildings

Includes new and converted houses, apartments, and other housekeeping dwellings constructed by state and local housing authorities; dormitories and nurses' homes.

#### Nonresidential Buildings

*Educational Buildings.*—Includes elementary and secondary school buildings; college buildings; technical, administrative, and cafeteria buildings in connection with the school plant; school bus garages, gymnasiums when part of a building used for school purposes; laboratories and science buildings; libraries, art galleries and museums.

*Hospital and Institutional Buildings.*—Includes general, mental, tuberculosis, and chronic disease hospitals; clinics and infirmaries; child centers and nurseries; orphan homes; poor houses and old peoples' homes; insane asylums and other institutional



buildings; all buildings in connection with hospital or institutional facilities except dormitories and residences for attendants, doctors, and nurses.

*Public Administration Buildings.*—Includes courthouses and city halls; government office buildings; state capitols; administration buildings in connection with publicly-owned utilities; armories, firehouses, comfort stations, zoo buildings, and other public buildings.

*Social and Recreational Buildings.*—Includes assembly buildings, auditoriums, and community buildings; theaters, gymnasiums and athletic buildings; stadiums, grandstands, bleachers, swimming pools, bath houses and indoor rinks; exhibit buildings, and miscellaneous park buildings.

*Miscellaneous Nonresidential Buildings.*—Includes garages and service stations; restaurants and cafeterias if independent facilities; manufacturing buildings and warehouses; terminal buildings; airport terminals and hangars; boiler houses; grain elevators; greenhouses; crematoriums; jails and penitentiaries; reformatories and detention homes; police stations; workhouses; juvenile training schools; and other penal and corrective buildings; and other public buildings not elsewhere classified.

#### Highways

Includes streets, roads, alleys, bridges, vehicular tunnels, viaducts, sidewalks, curbs, and gutters; building new and extending old culverts and building flood control, flood prevention, and earthwork protective structures in connection with road improvements.

#### Sewer

Includes all sewerage systems, sewage disposal plants, incinerators, and drainage ditches other than in connection with highway or conservation work.

#### Water

Includes all water supply systems; filtration and treatment plants; reservoirs for municipal water-supply, water towers, aqueducts, and other transmission and distribution facilities.

#### Miscellaneous Public Service Enterprises

Includes publicly-owned electric light and power plants, gas facilities, central heating plants, local transit systems, and other facilities except water-supply and sewerage disposal; waterfront development, including docks, piers, harbor work, sea walls, jetties, barge terminals; also includes runways, roads, aprons, grading and drainage, radio and signal towers, lighting, and all construction work at airports except administration, terminal, hangar, and other buildings.

#### Other

Includes non-Federal conservation and development work such as dams, levees, drainage ditches, canals, and other flood control and prevention work; other conservation work such as irrigation, dredging, fish hatcheries, etc.; parks and playgrounds, ball parks, tennis courts, football fields, street and other lighting, landscaping and roads and paths in parks; retaining walls, memorials, and other public work not elsewhere classified.

### FEDERAL CONSTRUCTION

The classification of most direct Federal construction, because of the nature of the work and the reported estimates of construction volume, is on a broad functional basis. Direct Federal construction activity normally is primarily concerned with (1) national defense, and (2) the protection, control, and development of the nation's water resources. All construction work at Federal military installations—whether housing, hospitals, or sewer and water facilities—is included under "military facilities." All Federal



construction activity in connection with reclamation and irrigation, flood control, and river and harbor improvement, is included under "conservation and development," regardless of type of construction involved. With the exception of housing, all construction at government-owned industrial plants and at the sites of Atomic Energy Commission installations, is included in "industrial building." Other direct Federal activity, principally the construction of Federal government buildings, postoffices, Veterans' hospitals, and facilities needed for development and use of Federal lands, is classified in the appropriate construction type.

### Residential Buildings

Includes dormitories and housekeeping dwellings at Atomic Energy Commission installations; temporary and permanent war housing; veterans' re-use housing.

### Nonresidential Buildings

*Industrial Buildings.*—Includes Government-owned manufacturing, assembly, and storage buildings, such as those constructed by the Defense Plants Corp., the Department of Defense, and Atomic Energy Commission; auxiliary construction in connection with these plants such as sewer systems and water supply facilities, schools, hospitals, roads, utilities, and recreational facilities, etc. also is included in this category.

*Hospital and Institutional Buildings.*—Includes all veterans' hospital and domiciliary facilities; all construction in connection with the hospital or institutional plant such as administration and office buildings, water tanks and towers, water treatment plants, sewage disposal plants and other utilities; other auxiliary facilities such as laundries, cafeterias, recreational facilities, etc.; residential quarters for doctors, nurses, and attendants.

*Public Administration Buildings.*—Includes government office buildings, court houses, postoffices, customs houses, immigration and quarantine stations, etc.

*Miscellaneous Nonresidential Buildings.*—Includes Federal airport terminal and hangar facilities, central heating plants, and other Federal nonresidential building not elsewhere classified.

### Military Facilities

Includes all construction at Federal military establishments except industrial buildings; includes administration and training buildings, warehouses, mess halls, recreation centers, chapels, power houses, post and general hospitals, heating plants, commissaries, laboratories, rifle ranges, airfields, roads, sewer systems and water-supply facilities, dwellings, piers, docks, fleet facilities, radio facilities, etc.

### Conservation and Development

Includes all construction in connection with reclamation, river, harbor, flood control, and soil conservation projects; dams, reservoirs, and pumping stations, power plants, tunnels, installation of generating equipment, access roads, towers, transmission lines, and telephone systems; relocation of roads and railroads, dredging, piledriving, levees and revetments, dwellings and office buildings, warehouses, garages, sewer system and water treatment plants, etc.

### Highways

National Park and Forest Roads.

### Other

Miscellaneous Federal construction work not elsewhere classified.

## Appendix B—DERIVATION OF CONSTRUCTION VALUE ESTIMATES

Estimating procedures for the value estimates are determined largely by the nature of the source data. The procedure for each type of construction follows one or more of three general patterns: (1) All types of private construction, except farm and public utility, and all types of state and local public construction, except those which are federally aided, are estimated from contract awards or building permits; (2) construction by privately owned public utilities is estimated basically from financial data; and (3) most types of Federal construction are estimated from progress reports on individual projects.

Contract award reports generally provide reasonably good value information for projects covered. The coverage of these data, however, is far from complete, and an estimate for the uncovered areas must be made. Furthermore, there is a varying time lag between the reported date of a contract award and the start of actual construction. Finally, the allocation of the adjusted contract values to the particular time periods during which the work is presumed to have been done is based on past activity patterns and cannot be precise.

Building permit reports are used nationwide for the private housing figures, and are used only for the 11 western States in deriving value estimates for private nonresidential building. When used without adjustment, building permit reports share with contract awards the disadvantage of not indicating the start of construction. Also, permit valuations generally are less reliable than award values (to which parties are committed by contract) as valuations entered on permits usually understate actual construction costs. While permit coverage includes virtually all known permit-issuing places, some areas do not have a permit system; to that extent coverage for nonresidential building is limited. For the private housing segment, however, continuing sample surveys in permit-issuing areas provide factors by which the building-permit data for this type of work are adjusted for time lag between permit issuance and the start of construction, for lapsed permits, and for undervaluation. Also, continuing sample surveys in nonpermit-issuing areas give data for complete geographic coverage on housing.

Direct reports of work done or paid for are obtained through formal reporting systems involving the regular and sometimes mandatory cooperation of parties to the construction contracts. Coverage of work done by or for the categories of purchasers included in these systems is generally excellent. The value information reported, being taken on a fairly standardized basis from accounting records appropriate to the purpose, is also quite satisfactory. Finally, the reported timing of contract construction work is based largely on engineering inspections made to check contractors' claims for progress payments, and therefore accords very closely with the conceptual requirements of the estimates.

For some types of construction, the foregoing kinds of information are either unavailable or inadequate on a monthly basis, and preliminary estimates must be made from a variety of data of varying appropriateness and reliability. Extrapolation of trends and preliminary industry estimates generally characterize the kinds of data used. A small part of nonfarm residential construction, all farm construction, and construction done by or for some of the public utility companies fall in this category. The sources used in these instances vary widely in quality. In general, they yield results less reliable than those derived by the use of the other sources described.

The following table lists the principal sources that provide the basic data for derivation of value estimates for major types of construction.

## SOURCES USED IN ESTIMATING EXPENDITURES FOR NEW CONSTRUCTION, BY OWNERSHIP AND TYPE OF CONSTRUCTION

Ownership and type of construction	Source of basic data
<i>Private</i>	
Residential building (nonfarm).....	BLS building permit reports and field studies.
Nonresidential building (nonfarm) all types.....	F. W. Dodge contract award figures. BLS building permit reports.
Farm construction: all types.....	Department of Agriculture.
Public utilities:	
Railroads.....	Interstate Commerce Commission. Association of American Railroads.
Telephone and telegraph.....	American Telephone and Telegraph Co. Western Union Telegraph Co.
Local transit.....	American Transit Association.
Petroleum pipe line.....	Interstate Commerce Commission.
Electric light and power.....	Federal Power Commission.
Gas.....	American Gas Association.
All other private.....	F. W. Dodge contract award figures.
<i>Public</i>	
Residential.....	Public Housing Administration. State and local housing authorities.
Nonresidential building:	
Industrial.....	Atomic Energy Commission. Department of Defense.
Educational.....	F. W. Dodge and other contract awards data. Housing and Home Finance Agency.
Hospital and institutional.....	Public Health Service. Veterans Administration.
All other nonresidential.....	F. W. Dodge and other contract awards data. Federal agency supervising construction. Federal agency awarding contract. Budget of the United States.
Military facilities.....	F. W. Dodge and other contract awards data. Department of Defense.
Highways.....	Bureau of Public Roads.
Sewer and water.....	F. W. Dodge and other contract awards data. Housing and Home Finance Agency. Public Health Service.
Miscellaneous public service enterprises.....	Department of Commerce. Civil Aeronautics Administration.
Conservation and development.....	F. W. Dodge and other contract awards data. Bureau of Reclamation. Office of Chief of Engineers. Tennessee Valley Authority.
All other public.....	Budget of the United States. Budget of the United States. F. W. Dodge and other contract awards data.

## PRIVATE CONSTRUCTION (EXCEPT UTILITIES AND FARM) AND STATE AND LOCAL PUBLIC CONSTRUCTION (EXCEPT WITH FEDERAL AID)

Building permits and contract awards are the main sources of information on private nonfarm residential and nonresidential building and on practically all types of State and local public construction other than highways, hospitals, schools, and airports which are Federally aided. They are the basis for estimates of about 60 percent of the total value of all new construction. These two sources require supplementation and adjustment in order to reflect fully the value of private nonfarm building and of State and local public construction started.

### Private Nonfarm Residential Building

Monthly reports to the Bureau of Labor Statistics on the value of new dwelling units authorized by local building permits are adjusted to reflect the construction cost of new permanent nonfarm dwelling units started in all permit-issuing places. Inflating factors are applied to compensate for understatements of cost inherent in permit valuations. These factors are revised annually on the basis of information obtained from field surveys in which the permit valuation and the construction cost reported by builders and contractors are compared for a large sample of projects.

Construction cost of units started in nonpermit-issuing places is based on monthly field studies. Estimated construction costs are secured from builders and contractors for a large number of dwelling units in sample counties throughout the country (the BLS sample consists of 53 representative areas, including 131 counties). From these, an average construction cost for all units started in nonpermit-issuing areas is derived.

The permit and nonpermit segments are then combined to give total estimated construction cost of the dwelling units started in the given period. A further adjustment is then applied to this construction cost to cover architect and engineering fees, and that part of site development costs which are not accounted for elsewhere (expenditures for streets, sewers, sidewalks, curbs, and gutters which are built by municipalities are included under public construction).

An expenditure pattern is then applied to this adjusted cost figure to estimate the amount of work put in place in the months following start of construction. This pattern is derived from: (1) special studies of construction time to obtain a distribution of completions in the month of start, in the following month, and so on; and (2) studies of the progress on actual jobs to develop typical patterns for jobs of 2 months' duration, 3 months' duration, and so on. The final expenditure (or "value put in place") pattern is an average of these patterns for different lengths of construction time, weighted by the proportion of units started which are completed in these various lengths of time.

Housing starts, which are basic to these estimates, are developed from the same monthly reports referred to above, received from virtually all local permit-issuing offices (in about 7,000 cities; towns, villages, townships, counties, etc.). The building permit data are adjusted for a minor amount of nonreporting, for lag between permit issuance and the start of construction, and for the extent to which permits are never used. These latter two adjustments are based on the annual studies that provide the inflating factor to convert permit valuation to construction cost. Housing starts in nonpermit-issuing areas are derived from relating the number of housing starts in the nonpermit-issuing parts of the 53 sample areas (referred to above) to the number of starts in the permit-issuing parts of these areas, and applying the ratio to the starts for the entire universe of permit-issuing places.

The nonhousekeeping segment of private residential building is estimated from primarily the same sources and using the same techniques as for private nonresidential building and non-Federal public construction, described below. This category includes hotels, dormitories, and such structures as tourist courts, and cabins, and vacation cottages.

### Private Nonfarm Nonresidential Building and State and Local Public Construction

Records of contract awards compiled by the F. W. Dodge Corporation indicate the volume of building about to be started in the 37 States East of the Rocky Mountains. These data are the principal basis for estimates of the value of construction of private industrial, commercial, religious, hospital, social and similar nonresidential buildings, and for estimates of non-Federal public construction such as schools, hospitals, public administration buildings, sewage disposal and water supply facilities, publicly owned public utilities and similar types of state and local construction in the 37 States east of the Rocky Mountains.

Several adjustments are made to the Dodge data in order to arrive at estimates of the value of private nonresidential building and of State and local public construction actually started throughout the country. A brief description of the adjustments follows:

1. *Cancellations.*—A contract for construction may be cancelled later or indefinitely postponed. In the Dodge reports, adjustments for cancellations and corrections are made in data for the month in which cancellations or corrections are ascertained, rather than in data for the month in which the original entry was made. Where such cancellations or corrections would significantly affect measurements of the trend of construction activity, it is necessary to carry them back into data for the month in which contract awards were reported.

2. *Undercoverage in 37 Eastern States.*—An adjustment is made to allow for projects not included in the Dodge reports. The omissions are chiefly smaller projects and force account work. The adjustment, of necessity, involves considerable judgment because there has never been a complete enumeration or controlled sampling of such projects. It is based upon analyses of the techniques employed by Dodge in the collection and processing of contract award information and upon comparisons with fragmentary data developed from other sources.

3. *Expansion To Cover 11 Western States.*—Since the Dodge reports cover only the 37 eastern states, they do not reflect contract awards in the 11 states of the Rocky Mountain and Pacific Coast Regions. Building permit data are available for practically all urban areas in the United States. The percentages of the United States totals indicated in these building permit data as being in the western States are used as raising ratios to expand the 37 State totals to estimated United States totals for each type of private nonresidential building. Because building permits cover only a part of all private nonresidential construction work started, with the coverage varying considerably among the various types of construction and from one period of time to another, the results are checked and augmented whenever possible through the use of reports on construction contract awards which appear in the "Rocky Mountain Constructor," the "Daily Pacific Builder," and about twenty other similar publications. These reports, together with extensive correspondence carried on with State and local officials, have also provided the data necessary to supplement the Dodge reports on State and local public construction for the 37 eastern states in order to derive estimates of the total amount of this type of construction about to be started throughout the entire United States.

4. *Duplication of Data on Public Utility Buildings.*—Offices, warehouses, and other buildings constructed by public utilities are included in the total value of construction reported by the various utilities and are also included in Dodge reports for nonresidential buildings. To eliminate this duplication, estimates for buildings constructed by



public utilities are subtracted from total values of warehouse, office, and loft buildings in the private nonresidential building segment. Thus, an office building constructed by an electric power company appears, not under nonresidential building, but under utility construction.

#### Translation of Contract Awards into Work Started

No definite lag patterns have been established for private nonresidential building and state and local public construction, which are estimated primarily from contract awards. Some projects undoubtedly are started within the same month in which contracts are awarded. Others will not be started until two or three months later. Translation of contract awards into work started on these types of construction is done by more or less arbitrarily assuming that all projects are started in the month following that in which contracts are awarded.

#### Conversion of Work Started to Construction Put in Place

Most construction projects take several months to complete after they are started. A certain percentage of the total value of the project is "put in place" during the first month, an additional percentage during the second month, and so on. Through surveys of thousands of actual projects, typical progress patterns for various types and sizes of projects have been developed. Modifications of these patterns were made during the war years from data collected by the War Production Board and during the immediate post-war years when materials shortages delayed construction on the basis of data collected by the Commerce Department for the Civilian Production Administration and by the Labor Department for the National Housing Agency. Most of these patterns, however, are now obsolete, since no new surveys for private nonresidential building and State and local public construction have been conducted in many years.

The following tabulation demonstrates in an abbreviated form how the total value of work started each month is converted by use of activity patterns into estimates of the value of work put in place. Let us assume that the total value of all projects upon which work was begun in January was \$5,000. Applying the appropriate timing pattern for this particular type of construction, the time of year in which work was begun, and the average size of the projects involved, these starts are estimated to result in \$500 construction

VALUE OF WORK PUT IN PLACE EACH MONTH

Month in which work started	Value of work started	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
January.....	\$5,000	500	1,000	2,000	1,000	500	.....	.....	.....	.....	.....	.....	.....
February.....	7,000	.....	700	1,400	2,800	1,400	700	.....	.....	.....	.....	.....	.....
March.....	10,000	.....	.....	800	1,700	3,500	2,500	1,000	500	.....	.....	.....	.....
April.....	15,000	.....	.....	.....	1,500	3,000	5,700	3,450	1,050	300	.....	.....	.....
May.....	12,000	.....	.....	.....	.....	1,200	2,400	4,560	2,760	840	240	.....	.....
June.....	9,000	.....	.....	.....	.....	.....	1,080	2,250	3,600	1,350	720	.....	.....
July.....	11,000	.....	.....	.....	.....	.....	.....	1,100	2,200	4,180	2,530	770	220
August.....	8,000	.....	.....	.....	.....	.....	.....	.....	960	2,000	3,200	1,200	640
September.....	7,000	.....	.....	.....	.....	.....	.....	.....	.....	840	1,750	2,800	1,050
October.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	600	1,250	2,000
November.....	6,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	600	1,200
December.....	3,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	300
Total.....	.....	.....	.....	.....	.....	.....	12,380	12,360	11,070	9,510	9,040	6,620	5,440

work done in January, \$1,000 in February, \$2,000 in March, and so on. The total value of work done in any one month is the sum of the estimated values of work done during that month on all projects under way at that time.

## FARM

Annual estimates of total expenditures on farm buildings and a breakdown of the total as between expenditures on operators' dwellings and expenditures on other farm structures are prepared by the Agricultural Marketing Service of the Department of Agriculture. They are based chiefly on data from sample surveys of construction expenditures of farm operators in 1934-37, 1939, 1946, and 1949.

Estimates for other years are made by interpolation and extrapolation, based in part on inference from data on farm electric lighting systems, silos, domestic water systems, etc., reported in the annual Census of Manufacture and Sale of Farm Machinery and Equipment. The bulk of the dollar amounts involved, however, for other than benchmark years represents approximations based on changes in indices of farm construction costs and in such indicators as estimated consumption of lumber on farms, sales of building materials in rural areas, and nonfarm residential construction. The separation of estimated expenditures for maintenance and repairs from new construction expenditures is based upon relationships indicated in some of the source material.

Current monthly estimates of new farm construction are prepared by the Department of Commerce by projecting annual estimates for the preceding year on the basis of the trend of farm income and applying a seasonal pattern to the annual totals.

## PUBLIC UTILITIES

Estimates of the value of new construction by privately-owned public utilities are made basically from financial data showing outlays for construction. Since financial reports usually are made up sometime after the close of a year, it becomes necessary to extrapolate from other data during the current year in order to provide preliminary monthly estimates which are subject to adjustment when complete financial data become available. Sources of financial statistics and bases used for extrapolation in preparing estimates of construction by various major classes of privately-owned public utilities are described below:

1. *Railroads*.—Final estimates are based on an annual summary of construction expenditures prepared by the Interstate Commerce Commission from reports to that agency by all Class I railroads. Construction expenditures by Class I railroads are adjusted upward to allow for construction by all classes of railroads. Provisional data compiled monthly by the Interstate Commerce Commission are used for extrapolation to prepare preliminary monthly estimates. These preliminary estimates are adjusted, first, shortly after the close of the year when the annual report of the Bureau of Railway Economics of the Association of American Railroads becomes available. They are subject to further adjustment to correspond with the official figures of the Interstate Commerce Commission which are issued subsequently.

2. *Local Transit*.—The Transit Fact Book, annual publication of the American Transit Association, provides the basic source for estimates of capital and maintenance expenditures of transit companies in the United States. Monthly extrapolations are based on the trend shown by other public utilities.

3. *Petroleum Pipe Lines*.—Annual reports by oil companies covering their capital expenditures filed with the Interstate Commerce Commission form the primary basis for final

estimates. These reports must be adjusted to eliminate purchases of existing lines and to allow for expenditures of companies not required to file reports with the I.C.C. Monthly extrapolations are made on the basis of the trend shown by Dodge contract awards data and by quarterly data of the Securities and Exchange Commission.

4. *Electric Light and Power.*—Annual reports to the Federal Power Commission by Class A and B electric utilities are used to prepare final estimates. These reports are adjusted to exclude purchases of existing facilities and to allow for construction by small companies not required to file reports. Monthly extrapolations are based on the trend shown by Dodge contract awards data and by quarterly reports of the Securities and Exchange Commission on capital expenditures of utility companies.

5. *Gas.*—Annual data published by the American Gas Association are the basis for final estimates. They cover both manufactured and natural gas facilities and they include gas transmission lines as well as local distribution lines. The A.G.A. data are adjusted to eliminate manufacturing and pumping machinery and equipment purchases. Monthly estimates are made by extrapolations based on the trend of Dodge contract awards and on quarterly data compiled by the Securities and Exchange Commission on capital expenditures of utilities.

6. *Telephone and Telegraph.*—Monthly estimates of new construction expenditures by the entire telephone industry in the United States are used as prepared by the American Telephone and Telegraph Company. The A.T. & T. summarizes reports from member companies of the Bell System and includes an estimate of construction by independent companies. No further adjustments are necessary.

Monthly statements of construction expenditures by the Western Union Telegraph Company are used as received from the Company.

## **FEDERAL CONSTRUCTION**

Estimates of the value of most of the principal types of construction participated in by the Federal Government, either directly or through Federal aid, are based on progress reports supplied by the administering Federal agencies. Sources of data for the various major programs are described below:

1. *Educational.*—Estimates for expenditures under the Federal School Construction Program are summarized from individual project progress report prepared at the site by HHFA engineers and forwarded to that Agency's Washington office. Since this is a Federal grant-in-aid program, the construction is locally contracted and supervised, and awards under it are included in the Dodge statistics for state and local construction. Therefore, to avoid a duplication, projects in the FSCP are deleted from the Dodge series which, as previously described, is the source of the estimates for state and local construction not Federally aided.

2. *Hospital and Institutional.*—Two major programs are involved, that of the Veterans Administration, and the National Hospital Program. Estimates of the value of veterans hospital building are based on monthly progress reports supplied to the Veterans Administration by project engineers in the field.

The National Hospital Program is one of Federal aid. Estimates of the value of work done under this program are prepared from progress reports on individual projects submitted by State agencies administering the program to the Hospital Facilities Division of the Public Health Service. The method of integrating these estimates with those for other State and locally owned hospital construction is similar to that described for educational.

3. *Atomic Energy Commission Facilities.*—Estimates of the value of construction are based on a monthly summarization of construction progress reports prepared by the Atomic Energy Commission.

4. *Other Federal Buildings.*—For those agencies which have substantial and continuing construction programs, such as the Public Buildings Service or the National Advisory Committee for Aeronautics, estimates of expenditures are based on monthly or quarterly progress reports provided by such agencies. For those agencies which engage in construction only occasionally or on a small scale, estimates are frequently based on the fiscal data presented in the Budget of the United States or are derived from a distribution of contract award values based on beginning and estimated completion dates.

5. *Military Facilities.*—Estimates are based on monthly progress reports submitted to the Office of Chief of Engineers of the Army, to the Assistant Chief of Staff, Installations of the Airforce, and to the Bureau of Yards and Docks of the Navy. These reports reflect the observation or actual measurement by service engineers of the volume of construction accomplished during the month at facilities of the armed forces. Relatively minor amounts of construction are included in this category for other components in the Department of Defense.

6. *Highways, Streets, and Roads.*—The Federal-Aid Highway Program currently accounts for roughly one-third of the total expenditures for highway construction in the United States. Monthly estimates of the value of work put in place under this Program are based on tabulations by the Bureau of Public Roads of individual project progress reports prepared by BPR engineers at the site, primarily to determine the "earnings" of Federal funds by the States for work that Federal-aid accomplished.

For the other components of highway construction, similar monthly data are not available. The monthly expenditures for this segment are, therefore, estimated by a subjective application of the seasonal trend of the Federal-aid program to the activity level established by the contract award tabulations of the Bureau of Public Roads and the F.W. Dodge Corporation. These estimates are corrected each year, however, to benchmarks based on tabulations by the Bureau of Public Roads of special annual fiscal reports submitted by the individual State highway departments.

7. *Conservation and Development.*—The large part of the construction to conserve, develop, or control the Nation's water resources which is carried on by the Bureau of Reclamation, the Civil Works Division of the Office of the Chief of Engineers, and the Tennessee Valley Authority is estimated from summaries received each month from these agencies covering expenditures accruing during the previous month. The small balance of work in this classification carried on by such agencies as the International Boundary and Water Commission, United States and Mexico, and the Soil Conservation Service is derived from annual fiscal data contained in the Budget of the United States. Monthly estimates are extrapolated for this small segment using trends shown by work carried on by the principal agencies in this field.

8. *Airports.*—Estimates of the value of civil airport construction are included in the category designated as "Miscellaneous Public Service Enterprises." Most civil airport construction currently is undertaken with Federal-aid under provisions of the Federal Airport Act of 1946. Estimates of the value of this work are based on monthly progress reports to the Civil Aeronautics Administration.

9. *All Other Federal Construction.*—The small amounts of Federal construction not included in the major classifications listed above are estimated generally from annual fiscal data in the Budget of the United States and extrapolated monthly on the basis of trends of other types of public construction.



## PUBLIC HOUSING

Since the completion in 1948 of the Veterans' Temporary Re-Use Housing Program, practically all public residential construction has been by State and local agencies. The New York City Housing Authority has carried on by far the most extensive program. Estimates of the value of work accomplished on NYCHA projects have been based on progress reports prepared to determine payments to contractors.

Estimates of the value of public housing construction in other State and local areas are derived by applying activity patterns to data collected by the Bureau of Labor Statistics from local housing authorities and similar local agencies on the estimated cost and duration of projects.

Direct Federal construction of housing as carried on during the depression, defense, and war periods under the Lanham Act as amended, was estimated from progress reports by the Public Housing Administration on the number and cost of units built. Construction of low-rent units and slum clearance expenditures by State and local agencies with Federal loans and grants under the Housing Act of 1949 also are estimated from progress reports made available by the Public Housing Administration. Rent subsidies are not counted as construction.

Expenditures for publicly owned nonhousekeeping structures are estimated in the same manner as those for other States and local public construction, using contract award data.

Public residential construction by the Department of Defense is included under "Military facilities" while housing at the sites of reclamation and flood control projects is included in the "Conservation and Development" category.

## MAINTENANCE AND REPAIRS

Estimates of expenditures for maintenance and repairs are in general less reliable than those for new construction. Because of the inconspicuousness and frequency of occurrence of this type of activity, it is the most difficult to cover. Efforts to overcome the serious deficiencies in the series in recent years have been hampered by the paucity of data and the necessity of concentrating available resources on the new construction estimates. The maintenance and repair estimates should be used with considerable caution.

For each type of structure, utility, and service facility, the data include both public and private expenditures. Public expenditures are Federal, State, and local outlays as well as those made by quasi-governmental institutions such as water districts, and port authorities. The available sources of information are inadequate for a breakdown between public and private expenditures. The following tabulation, however, offers an approximate basis for appraisal of the publicly financed portion of each expenditure figure for 1952:

Type of structure, utility or service facility	Approximate percentage of maintenance and repair expenditures which are publicly financed	Type of structure, utility or service facility	Approximate percentage of maintenance and repair expenditures which are publicly financed
Residential buildings (excluding farm).....	2	Military facilities.....	100
Nonresidential buildings.....	130	Conservation and development.....	100
Farm buildings.....	None	Sewage disposal and water supply..	85
Public utilities.....	None	Highways.....	100
		All other.....	75

<sup>1</sup>Chiefly schools.



1. *Residential Building.*—This series is the summation of the annual expenditures made by residents of owner-occupied dwelling units, residents of tenant-occupied dwelling units, and owners of tenant-occupied dwelling units. For each of the three types of expenditure sources, the estimate is derived from the multiplication of an average expenditure figure by the applicable number of either owner-occupied or tenant-occupied dwelling units.

The estimates of the number of owner-occupied and tenant-occupied dwelling units are based on U. S. Bureau of the Census housing data for 1947 and 1950. For the years 1948, 1949, 1951, and 1952, interpolations and extrapolations of the Census housing data are made using Census household population data adjusted by joint Bureau of the Census-Bureau of Agricultural Economics estimates of farm population to remove farm housing units from the owner-occupied category. Vacant nonseasonal dilapidated units are excluded from these estimates.

The annual average expenditures made by residents of owner-occupied dwelling units are available from studies conducted by the Board of Governors of the Federal Reserve Board and by the U. S. Bureau of Labor Statistics. For each of the years since 1947, the Federal Reserve Board has sponsored surveys dealing with consumer finances. The surveys yield for each year, with the exception of 1951, the average expenditure per owner-occupied dwelling unit for not only maintenance and repairs but also additions and alterations. A consumer expenditure survey for 1950 by the Bureau of Labor Statistics offers substantially similar results except that this undertaking provides a separate figure for maintenance and repairs as distinguished from additions and alterations. The Bureau of Labor Statistics data, therefore, make available a ratio of maintenance and repair expenditures to additions and alterations outlays. The application of this ratio to the total figures of the Federal Reserve Board survey provides annual estimates of maintenance and repair expenditures per owner-occupied dwelling unit.

The annual average expenditures made by residents of tenant-occupied dwelling units are derived from a 1950 expenditure estimate calculated from the Federal Reserve Board survey. The 1950 figure is extended back to 1947 and projected to 1952 on the basis of the Bureau of Labor Statistics index of mixed paint prices. Mixed paint is assumed to be the principal product purchased by tenants for the repair and maintenance of their rented dwelling units.

Annual average outlays of owners of tenant-occupied dwelling units are gotten from a 1950 survey conducted by the U. S. Office of the Housing Expediter. The 1950 estimate is extended back to 1947 and projected to 1952 using the year-to-year changes depicted by average hourly-wages paid by the building construction industry. This is a regularly released series of the Bureau of Labor Statistics. In this case the assumption is that labor costs are the chief ingredient of this particular type of repair and maintenance expenditure, and the annual changes in hourly wages results in similar changes in expenditures.

Two extensive studies<sup>1</sup> have been made by the Department of Commerce to derive estimates of maintenance and repair expenditures for residential buildings prior to 1945. Both studies depended upon the development of two basic measures: (a) The value of all outstanding residential properties, and (b) the ratio of maintenance expenditures to value, with allowances being made insofar as possible for differences resulting from city size, geographic region, ratio of rent (or imputed rent) to income, size of structure, age and type of structure and whether owner or tenant occupied. Federal Trade Commission esti-

<sup>1</sup>"Construction Activity in the United States, 1915-37," by Lowell J. Chawner, U. S. Department of Commerce (Domestic Commerce Series No. 99), pp. 20-21 and "The Pattern of Expenditures for Nonfarm Residential Repair and Maintenance," by Frieda J. Stephan and J. Joseph W. Palmer, U. S. Department of Commerce (Economic Series No. 55). Both out of print.

mates of national wealth were used in estimating the value of nonfarm residential property in 1922, while estimates for 1930 and 1940 were based on the Census of Housing. Maintenance expenditure ratios were derived from various studies such as the surveys of consumer purchases which have been made by the Department of Agriculture and the Department of Labor. These estimates were extrapolated and linked to the data for the years since 1947 by means of various indicators of trend such as sales of building materials and mortgage loans for repairs and improvements.

**2. Nonresidential Building.**—Basic accounting records seldom distinguish the repair and maintenance expenditures for buildings from those for machinery and equipment or from operating expenses such as those for fuel, utilities, and related services. Under these circumstances, no single method of derivation offers estimates which are not open to considerable question. Accordingly, the figures presented result from one of three procedures and are supported in magnitude and trend by the results of the two other techniques. These data are reliable to the extent that two partially independent judgments corroborate a third judgment.

The statistics presented for this category are unchanged from those previously released. They represent the summation of the estimated expenditures for industrial, commercial, and institutional buildings. The industrial category is derived from itemized repair expenses submitted to the Internal Revenue Service on corporate income tax returns covering manufacturing activities. Expenses covering plant as distinguished from equipment are isolated by using factors for each industry obtainable from U. S. Bureau of the Census surveys on expenditures for new plant and equipment. Cost analyses for office buildings presented in the *Experience Exchange Reports* of the National Association of Building Owners and Managers are the bases for evaluating the maintenance and repair expenditures for commercial buildings. Annual reports by state school agencies to the U. S. Office of Education provide the data for deriving the expenditure levels for institutional buildings.

The two supporting methods of estimating maintenance and repair expenditures for this category involve the more widespread applications of data provided by the *Experience Exchange Reports* and estimates based on the U. S. Office of Education statistics. One technique is that of applying to all nonresidential buildings the expense per square foot of floor space incurred in school buildings. The other is to assume that the maintenance and repair expense per square foot of floor space is proportional to the construction cost per square foot for each type of construction within the category. Using the office building expenses in the *Experience Exchange Reports*, as the basis for evaluating the expenses for other types of buildings, the total expense is obtained by multiplying the unit expenses by the estimated number of square feet of floor space for each type of construction and summing these multiplication products to render the total expense for all nonresidential buildings.

**3. Farm Buildings.**—Annual estimates of expenditures for the maintenance and repair of farm buildings are derived from total construction outlays for farm buildings estimated by the Agricultural Marketing Service of the U. S. Department of Agriculture on the basis of sample surveys in 1934-37, 1939, 1946, and 1949. Estimates for the other years result from interpolations, extrapolations, and inferences from data on farm machinery and equipment sales, changes in farm construction cost indexes, indicators of lumber consumption on farms, estimates of building material sales in rural areas, and measures of nonfarm residential construction activity. The sample survey data for the benchmark years are probably adequate to provide the means for distinguishing between expenditures for operators' dwellings and those for service buildings. The separation of expenditures for maintenance

and repairs from those for new construction is based on relationships indicated in the sample surveys and other collateral sources.

4. *Highways*.—The series provided for highways is obtained without adjustment from *Highways Statistics*, an annual publication of the Bureau of Public Roads, U. S. Department of Commerce.

5. *Public Utilities*.—As indicated below, the principal sources of information for the derivation of maintenance and repair expenditures by the public utilities are the various regulatory government commissions. These commissions compile such data from financial reports submitted by the various public utilities engaged in interstate commerce. In the case of local transit expenditures trade association statistics are used as primary information. For most types of public utilities the statistics available from the regulatory commissions have to be adjusted to take into account those expenditures which are not reported because of jurisdictional limitations of the federal government.

The maintenance and repair series for the public utilities are characterized by the inclusion of overhead items which are directly attributable to maintenance and repair operations. Thus, the figures include diverse items such as those covering insurance, superintendence, tools, machinery, and depreciation.

The following provides in detail the procedures followed in deriving the maintenance and repair expenditures for each of the public utilities:

*Railroad*—The estimates represent expenses for maintenance of ways and structures since 1915 as released by the Interstate Commerce Commission. The operations covered are those of Classes I, II, and III railroads, electric railroads, switching and terminal companies, express companies, and the Pullman Company. Any railroad companies omitted from the tabulation are negligible insofar as they affect the data.

*Local Transit*—The series are taken without change from the data published in the annual *Transit Fact Book*<sup>1</sup> as expenses for maintenance of ways and structures.

*Petroleum Pipe Lines*—The maintenance and repair expenses are developed from Interstate Commerce Commission data. Published information offers only annual expenditures for maintenance of plant and equipment by pipe lines reporting to the ICC. The construction repair and maintenance segment is extracted by the application of annual factors derived from detailed reports submitted by 9 large pipe line companies which own two-thirds of all lines regulated by the ICC. The factors are ratios of construction repair and maintenance expenses to plant and equipment repair and maintenance expenses. Spot checks confirmed the validity of the factors insofar as they apply to the smaller companies. The adjusted figures are then inflated to represent the experiences of all pipe lines, those outside of ICC jurisdiction as well as those within it. The inflating factor is based on the relationship between total mileage of pipe line as estimated by the Department of Interior, Bureau of Mines, and the mileage covered by the ICC reports.

*Electric Light and Power*—The estimates are derived from the detailed reports submitted by private electric light and power companies to the Federal Power Commission. The figures are compilations of those accounts falling under the construction repair and maintenance category. In the case of general property upkeep, accounting for less than 5 percent of total repair and maintenance expenditures, it is necessary to use a factor based on the experience of the ten largest companies representing about one-third of the industry to break out construction maintenance and repairs from total maintenance and repair expenditures. The expenses applicable to public light and power appear in the "All Other" category.

<sup>1</sup>*Transit Fact Book*, American Transit Association, New York, N. Y.

**Gas**—Reports submitted to the Federal Power Commission by the gas companies are the basis for this series. The estimates are summations of accounts in the category of construction repair and maintenance. The experience of the 8 largest companies is used to break down the "general distribution" maintenance account which is not given in adequate detail. The 8 companies constitute more than one-third of the industry as far as the general distribution account is concerned. In order to cover the operations of all gas companies it is necessary to inflate the data from the Federal Power Commission to account for those companies which are not under federal regulation. The procedure of inflation is that of applying the ratio of total annual revenue to the annual revenue of those companies under government jurisdiction. Between 1947 and 1952 the revenues of the companies under government regulation increased from 69 to 92 percent of total revenues. Total revenue estimates are available in *Gas Facts*,<sup>1</sup> an annual publication.

**Telephone**—Repair and maintenance expenditures by telephone companies are derived from Federal Communications Commission reports. Outlays by the Bell System are adjusted on the basis of investment in telephone plant to reflect the outlays by all telephone companies for maintenance and repair to outside plant, buildings, and grounds.

**Telegraph**—The series is the sum of the expenditures by wire telegraph and ocean cable carriers and radio telegraph carriers. Only operations in the Continental United States are included. Using Federal Communication Commission reports, the experience of the Western Union Company representing about 85 percent of the wire telegraph and ocean cable carrier operations, is inflated to represent all carriers. Similarly the experience of RCA and Mackay, representing about 80 percent of radio and telegraph carrier operations, are inflated to represent all carriers. For each of these companies, the reports provided precise maintenance and repairs expenditures as described by specific accounts.

**6. Military Facilities.**—Military and naval expenditures for maintenance and repair cover the work done by the Departments of the Army, Navy, and Air Force in the Continental United States. The data are derived directly from Department of Defense budget records and pertain only to those activities directly associated with repair and maintenance of real property. The budget data are adequate to provide estimates back to 1921. No specific information is available for the years prior to 1921; however, for these years the "All Other" classification includes these outlays.

**7. Conservation and Development.**—The maintenance and repair expenditure series applies to the Civil Works Projects of the Department of the Army Corps of Engineers. The data are prepared by that agency on a fiscal year basis. The conversion to the calendar year basis was performed by dividing each fiscal year in two and adding the appropriate halves to make up each calendar year.

Expenditures not included in this series are those made on conservation and development projects by the Department of Interior Bureau of Reclamation, the Tennessee Valley Authority, and agencies of state governments. Although not sufficiently precise for inclusion in this category, available records of the Bureau of Reclamation show that the maintenance and repair expenditures on its conservation and development projects do not exceed \$5 millions annually. The outlays by the TVA as itemized in its annual report are less than \$1 million annually which is not sufficiently significant for inclusion in this series. No data are available on state and local expenditures. It should be noted that these amounts although too small for inclusion or too vague for measurement are implicitly included in the "All Other" category.

<sup>1</sup> *Gas Facts*, American Gas Association, New York, N. Y.



8. *Sewage Disposal and Water Supply.*—The Bureau of the Census data covering finances of state and local governments yield annual expenditures for maintenance, repairs, and operation of publicly-owned water supply systems in cities with populations in excess of 25,000. On the basis of the 1952 survey which included all cities regardless of size, it is estimated that those of 25,000 or more persons account for 51 percent of the total population in all cities with public systems. Accordingly, the public expenditures of the larger cities are estimated to be 51 percent of total public outlays. From studies made by the Water and Sewerage Industry and Utilities Division, U. S. Department of Commerce, repair and maintenance expenditures account for two-thirds of the total spent for repairs, maintenance, and operations. The application of these factors provided the expenditures for publicly-owned systems which according to the Water and Sewerage Industry and Utilities Division, account for five-sixths of all water supply outlays.

The maintenance and repair expenses incurred for sewerage systems are calculated from data compiled by the Bureau of the Census and from studies conducted by the Water and Sewerage Industry and Utilities Division. The Bureau of the Census annually releases data covering the maintenance, repair, and operations activities of publicly-owned sewage and garbage collection systems in cities with populations in excess of 25,000. For 1952, the statistics showed that 21 percent of such expenditures were for sewage and the balance of 79 percent for garbage. Studies made by the Water and Sewerage Industry and Utilities Division indicate that sewerage systems expenses in cities of less than 25,000 population are equivalent to 60 percent of those of the systems in the larger cities. Furthermore, the studies show that outlays of privately operated sewerage systems account for 10 percent of total outlays. Finally, the studies reveal that maintenance and repair expenditure constitute 80 percent of total maintenance, repair, and operations expenses. The application of these relationships renders the estimates for sewage disposal systems.

For the years prior to 1947, the previously released maintenance and repair series applying to water supply systems was adjusted by applying to it the relationship of the revised estimate for 1947 to the old estimate for 1947. In the case of the sewage disposal series, the data pertaining to the years prior to 1947 were revised on the basis of studies made by the Water and Sewerage Industry and Utilities Division. From 1915 through 1941, the sewerage estimates range from 18 to 25 percent of the water estimates, increasing gradually in each succeeding year. From 1941 through 1946 the relationship is constant at 25 percent.

9. *All Other.*—The "All Other" category comprises the "All Other" classification of both public and private construction, miscellaneous public service enterprises, and those conservation and development projects outside of the Corps of Engineers. For the years from 1915 through 1920, military and naval types of construction are also included.

This series, a residual one, is included only to provide total maintenance and repairs estimates which correspond in scope with the estimates of new construction. It does not lend itself to any form of synthesis or analysis and, by itself, should not be used as a measure. The series serves only as increments to make the total estimates more accurate than they would be without giving consideration to this area.

In terms of physical volume of construction, this category comprises approximately two percent of the other types of construction. Accordingly, two percent of the total maintenance and repairs expenditures for other types of construction was assumed to be the appropriate value for this classification. For the years 1915 through 1920, an additional estimate for military and naval expenditures is included by using naval expenditure estimates of the Department of the Navy as a basis.



## Appendix C—DERIVATION OF CONSTRUCTION COST AND PHYSICAL VOLUME SERIES

### INTRODUCTION

This Appendix contains a description of the various indexes, expenditure series, and other construction volume data presented in Sections II and III, together with a summary of the methods of derivation used in their compilation.

### UNION SCALES OF WAGES AND HOURS

Indexes of union hourly wage scales and weekly hours in the building trades are compiled annually by the Bureau of Labor Statistics.

These indexes reflect trends in the minimum wage scales or maximum hours agreed upon through collective bargaining between trade unions and employers. Overtime beyond the negotiated maximum daily and weekly hours is excluded. In addition, the series does not reflect rates for apprentices or premium rates paid for special qualifications or other reasons.

Data are obtained primarily by questionnaire mailed to local union officials; in some cities local union officials are visited by BLS representatives for the desired information. In the index series (table 9 in this Supplement), designed for trend purposes, year-to-year changes in union scales are based on comparable quotations for each trade in 2 consecutive years. These quotations are weighted by the number of union members reported in the current year.

This series began in 1907, and from a coverage of 39 cities in early years, was expanded to 77 cities in 1949. In 1953, coverage was reduced to 52 cities, and the survey designed to reflect union scales in all cities of 100,000 or more population. The data for some of the cities included were weighted in order to compensate for cities not surveyed. Each geographic region and population group were considered separately when city weights were assigned in order to provide appropriate representation in the combination of data. Previously computed on the basis of 1939=100, the base period for the index was shifted in 1951 to the average of the 3-year period 1947-49, and the entire time series of indexes revised to the new base. (Coverage on this series is now being expanded to 100 cities.)

Detailed information on this series, including historic statistics by occupation, are shown in special bulletins issued annually by the Bureau of Labor Statistics.

### CONSTRUCTION COST INDEXES

The following is a description of the indexes contained in tables 10 and 11:

Department of Commerce Composite Cost Index—a combination of various indexes weighted by the relative importance of the major classes of construction. It is an implicit index computed by dividing the total estimate of new construction activity in current prices by the total expressed in 1947-49 prices. Since the total in 1947-49 prices is obtained by adding the estimates for the separately deflated classes of construction, the composite cost index is the equivalent of a variably weighted index, reflecting changes not only in the component indexes, but also in the relative importance of the major classes of construction which are used as weights. In the computation of the

monthly composite cost index, the shift in the relative importance of the major classes of construction due to their different seasonal movements is eliminated through the use of seasonally adjusted activity estimates. Beginning in 1945 the annual composite index is an average of the 12 monthly indexes. The cost indexes used for calculating the construction activity series in 1947-49 prices and thus entering into the composite index are listed on page 77.

**American Appraisal Company Index**—compiled on the basis of a detailed bill of quantities of material and labor required for typical frame, brick-wood frame, brick-steel frame, and reinforced concrete buildings with allowances for contractor's overhead and profit, in various cities throughout the United States. Workmen's compensation and liability insurance, unemployment insurance, and old-age pension factors are included. The indexes cover the structural portion of the buildings, but do not include the fixtures such as plumbing, heating, lighting, and elevators. The material and labor costs are recomputed monthly in accordance with average prices and wages supplemented by personal investigation of appraisers and information from clients and others as to actual costs. These computations automatically result in weighted averages for the individual buildings. Arithmetic averages are computed for the individual buildings and cities to obtain the city and national averages. The latter cover 24 cities prior to 1925 and 30 cities since that time. The index reflects changes in average price levels but does not reflect costs resulting from overtime wages and bonuses during boom periods or sacrifice prices and omissions of overhead costs and profits during depression periods.

**Associated General Contractors Index**—a combination of indexes of wages and materials weighted in the proportion of 40 percent for wages and 60 percent for materials. Wages used in computing this index are for hod carriers and common laborers, and the material prices are those for sand, gravel, crushed stone, portland cement, common brick, lumber (all weighted equally), hollow tile (weighted 1/2) and structural and reinforcing steel (both together weighted 1/2). Wages and prices are reported by the 12 district offices of the Association as of the 15th of each month.

**E. H. Boeckh and Associates Indexes**—based on separate computations for 10 types of buildings in 20 cities (comparable indexes are currently available from the compilers for a total of more than 40 cities). The basic list of items covered includes current local prices for common brick, common lumber, portland cement, structural steel, common labor, brick masons, carpenters, structural iron workers, plasterers, and miscellaneous which includes many specialized items such as heating and plumbing equipment, paint, glass, and hardware. Wage rates are adjusted to reflect efficiency of local labor. State and local sales taxes and social security pay-roll taxes are included. The weights assigned to the different items vary among the 10 types of buildings. An unweighted arithmetic average of the individual indexes for the 20 cities for each of the 10 types of buildings has been computed and these have been further consolidated into three series as follows: (1) Boeckh Residential Index—an unweighted average of the indexes for frame residences and for brick residences; (2) Boeckh Apartment, Hotel and Office Building Index—an unweighted average of the indexes for brick and wood, brick and concrete, and brick and steel apartment, hotel, and office buildings; and (3) Boeckh Commercial and Factory Buildings Index—an unweighted average of the indexes for frame, steel, brick and wood, brick and steel, and brick and concrete commercial and factory buildings. Prior to 1946 these indexes were presented in the original source as of the first of the following month to which they applied and therefore they have been shifted in this report to the previous month. During 1946 a gradual change in the reporting date for these indexes resulted in their being reported as of the month to which they applied.

**Engineering News-Record Indexes**—covering separately construction costs and building costs. The index of construction costs is comprised of (1) steel, which until 1938 was the base price of structural steel shapes at Pittsburgh and beginning in August 1938 is a weighted average of steel prices at Pittsburgh, Gary and Birmingham; (2) cement, which until 1948 was the consumers' net price, f.o.b. Chicago and beginning in July 1948 is the ENR 20-city average of bulk cement prices; (3) lumber, which until 1936 was 12 x 12 long leaf yellow pine, wholesale, at New York, and beginning in 1936 is a composite 20-city price average of 2 x 4 Douglas fir and southern or local pine in carload lots; and (4) common labor rate paid in the steel industry for 1913-20 and since 1920 the average common labor rate in construction (ENR 20-city average of wage rates in force). The four components are weighted according to their relative importance in the national economy in 1913. The index of building costs is identical to the index of construction costs for all components except wage rates, where the trend of skilled labor wage rates is substituted for common labor wage rates. The indexes apply to the end of the month for which they are shown; they are presented in the original source as of the first of the following month. A detailed description of these two indexes was presented in the Engineering News-Record, September 1, 1949.

**Agricultural Marketing Service Farm Construction Cost Indexes for Dwellings and Service Buildings**—a weighted index of farm wage rates and prices paid for materials. In compiling the index of farm dwelling construction costs, prices paid by farmers for building materials are given a weight of 73 percent, farm wage rates a weight of 27 percent. For farm service building construction, the corresponding weights are 78 and 22 percent. The wages paid by farmers for labor for building construction and repairs are higher than the wages paid for ordinary agricultural labor, but they probably fluctuate more nearly like farm labor wage rates than like urban union wage rates.

**George A. Fuller Company Index**—composite of 36 major cost elements, in three commercial type buildings, including structural elements, elevators, wiring, heating, and ventilating. The figures shown in table 10 are based upon annual averages (of irregularly compiled indexes) computed and published by the Engineering News-Record.

**Handy's Public Utility Construction Cost Indexes** (compiled by Whitman, Requardt and Associates, Baltimore, Maryland)—indexes measuring changes in construction costs of utility buildings, gas plants, and electric plants. Cost trends of reinforced concrete utility building construction and brick utility building construction are reported semiannually by geographic regions. A single index is computed by averaging the figures for the first, middle, and end of each year for each region and then combining the regions for a United States average. Cost trends of gas plant construction and of steam-operated electric plant construction are also reported semiannually by geographic regions. A single index for each is computed in the same manner as for utility buildings.

**Interstate Commerce Commission Indexes**—indexes of railroad construction costs and telephone and telegraph construction costs compiled by the Engineering Section of the Bureau of Valuation of the Interstate Commerce Commission. The railroad construction cost index is the weighted average for the entire United States of 31 separate indexes for individual operations important in railroad construction. Separate indexes covering items such as grading, tunnel excavation, bridges, ballast haul, and tracklaying and surfacing, were developed largely from analysis of major construction contracts covering a period of more than 30 years. The indexes for materials accounts—such as ties, rails, other track material, ballast, and fences—were based on studies of carriers' returns to Valuation

Order 14, joint studies made with the various railroad committees, well-known engineering and trade publications, contracts covering major construction projects over a period of 30 years, and other information furnished by individual carriers. The telephone and telegraph lines construction cost index is road account number 26. "Telegraph and telephone lines," of the railroad construction index.

Bureau of Public Roads Highway Index—a measure of highway construction cost changes based upon a record maintained by the Public Roads Administration of quarterly variations in contract unit bid prices extending back to 1922. Cost indexes are based on average annual construction on State and Federal-aid highway systems during the 5 years 1925-29, inclusive. Average costs for these years are taken as 100 percent. For this period the total quantity and contract cost of each of the principal cost controlling contract items were summarized and divided by the total mileage of construction. This operation provided average quantities of each type of work involved per average gross or composite mile of construction. The average mile of construction during this period involved the movement of 17,491 cubic yards of earth, the placing of 3,726 square yards of paving, 16,000 pounds of reinforcing steel, 4,325 pounds of structural steel, and 68 cubic yards of structural concrete. Since both unit prices and construction volumes vary not only from State to State but also from year to year, the percentage of each item contributed during this 5 year period by each State was adopted as the contributing State base. The current cost index thus indicates the relative costs at which the average quantities placed per mile in 1925-29, with the same State distribution, could be replaced today at current contract bid prices. The Department of Commerce has extrapolated this series back from 1922 to 1915 by means of a weighted average of the Interstate Commerce Commission indexes for Account Numbers 3, 5, 6, and 11.

Turner Construction Company Index—their own building cost experience in eastern cities applied to these factors: Labor rates, material prices, productivity of labor, efficiency of plant and management, and competitive conditions.

#### BUILDING MATERIALS WHOLESALE PRICE INDEXES

The building materials wholesale price indexes compiled by the Bureau of Labor Statistics are designed to measure trends in prices at primary market levels and to measure "real" price changes; i.e., those not influenced by changes in quality, quantity, or terms of delivery. Commodities are defined by precise specifications which incorporate the principal price-determining characteristics of the materials; transportation costs are included in the index only insofar as they are included in the primary market price. New items are not included until they have become established both technologically and in the market.

For this index, building materials are defined as including all products or materials which are either (1) physically incorporated as an integral part of a building during its construction, or (2) normally installed during the construction process and not removable without seriously impairing the use of the building or actually destroying a portion of it. Items used primarily in nonbuilding construction, such as railroad, pipe-line, dam and highway work, are assigned weights in accordance with their use in building construction.

In 1952 there was a major revision and modernization of the building materials price indexes. Through 1951 the indexes were calculated as fixed-base weighted aggregates, with



1926 prices as 100 percent. (In this Supplement, these indexes were converted to 1947-49 = 100 for purposes of comparison with other indexes.) Weights used were the average of quantities marketed in 1929 and 1931, with necessary adjustments made to reflect changing market conditions. The 1952 revision involved expanded coverage, the classification system, weights, and calculation methods. The base period was changed from 1926 to the average of the 3 years 1947, 1948, and 1949 (1947-49 = 100).

The revision of these building materials indexes was accomplished as part of the revision of the overall BLS Wholesale Price Index covering *all* commodities, in which the new classification system is based on products or commodities, rather than on industry, source, or end use. Thus, the various building materials are now included within groups in the all-inclusive Wholesale Price Index, and a special purpose index covering "All building materials" was developed. Although the new index has been computed back to January 1947 for purposes of comparison, the old index (with 1926 = 100 as a base) remains the official index through December 1951.

For a complete statement about the revision and compilation of this series, see BLS Bulletin 1168, "Techniques of Preparing Major BLS Statistical Series." Available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., at 65 cents a copy. (See outside back cover.)

### NEW CONSTRUCTION ACTIVITY IN 1947-49 PRICES

A comprehensive measure of the physical volume of construction being undertaken or carried on would serve many worthwhile purposes in the analysis of construction activity. Unfortunately, no yardstick has been developed for converting such heterogeneous quantities as miles of new highways, number of dams for flood control or irrigation, number of new dwelling units, square feet of floor space in commercial and industrial buildings, and number of airports to a common denominator, except by expressing them all in terms of the dollars that they cost. If the dollar purchased the same quantity of a given item from time to time, this procedure would yield a satisfactory measure of the physical volume of all types of construction. Lack of stability characterizes the construction dollar, however, as it does the purchasing power of the dollar for all other purposes.

Any attempt to adjust actual dollars spent for various types of construction to a constant purchasing power will be only as successful as the validity of the indexes of construction costs used for the purpose. Accurate cost indexes are difficult to compile even for such relatively standardized items as a ton of steel or a yard of cotton cloth. The problems are multiplied infinitely when it comes to measuring changes in costs of the widely-diversified custom made products of the construction industry. As a result, the data given in this section on the value of various types of construction and of all types combined in terms of 1947-49 prices represent only a rough approximation of changes in the physical volume of construction.



## COST INDEXES USED IN ADJUSTING VALUE OF NEW CONSTRUCTION ACTIVITY TO 1947-49 PRICES

Type of construction	Deflating index <sup>1</sup>		Interpolating index <sup>3</sup> (available monthly)
	Name of index	Available <sup>2</sup>	
<b>Private:</b>			
Residential (excl. farm).....	Boeckh—residential.....	M	None.
Nonresidential buildings:			
Industrial.....	Turner.....	A	Boeckh—commercial and factory.
Warehouses, office and loft bldgs..	Fuller.....	A	Boeckh—hotel and office.
Stores, restaurants and garages....	American Appraisal Company.....	M	None.
Other nonresidential building.....	American Appraisal Company.....	M	None.
<b>Farm:</b>			
Operators' dwellings.....	BAE—operators.....	A	Boeckh—residential.
Service buildings.....	BAE—service buildings.....	A	American Appraisal Co.
<b>Public utility:</b>			
Railroad.....	ICC—railroad.....	A	ENR—construction.
Telephone and telegraph.....	ICC—telephone and telegraph.....	A	ENR—construction.
Local transit.....	ICC—railroad.....	A	ENR—construction.
Electric light and power.....	Weighted average of: Handy—electric plant (weight 9) Handy—utility bldg. (weight 1).. Weighted average of: Handy—gas plant (weight 9)..... Handy—utility bldg. (weight 1).. Unweighted average of: Handy—electric plant..... Handy—gas plant..... Handy utility bldg..... ICC—railroad.....	SA SA SA SA SA SA SA A	ENR—construction. ENR—construction. ENR—construction. ENR—construction. ENR—construction. ENR—construction. ENR—construction. ENR—construction.
Gas.....	Weighted average of: Handy—gas plant (weight 9)..... Handy—utility bldg. (weight 1).. Unweighted average of: Handy—electric plant..... Handy—gas plant..... Handy utility bldg..... ICC—railroad.....	SA SA SA SA SA SA A	ENR—construction. ENR—construction. ENR—construction. ENR—construction. ENR—construction. ENR—construction. ENR—construction.
Petroleum pipe line.....	Unweighted average of: Handy—electric plant..... Handy—gas plant..... Handy utility bldg..... ICC—railroad.....	SA SA SA A	ENR—construction. ENR—construction. ENR—construction. ENR—construction.
All other private.....	Unweighted average of: Associated General Contractors ENR—construction.....	M M	None. None.
<b>Public:</b>			
Residential.....	Boeckh—residential.....	M	None.
Nonresidential building:			
Industrial.....	Turner.....	A	Boeckh—commercial and factory.
Educational.....	American Appraisal Company.....	M	None.
Hospital.....	American Appraisal Company.....	M	None.
Other nonresidential bldg.....	American Appraisal Company.....	M	None.
Military facilities.....	Unweighted average of: American Appraisal Company..... Bureau of Public Roads..... Fuller..... Turner..... Bureau of Public Roads.....	M Q A Q Q	None. ENR—construction. Boeckh—hotel and office. Boeckh—commercial and factory. ENR—construction.
Highway.....	Bureau of Public Roads.....	Q	ENR—construction.
Sewer and water.....	Unweighted average of: Associated General Contractors ENR—construction.....	M M	None. None.
Misc. public service enterprises.....	Weighted average of: Handy—electric plant (weight 9) Handy—utility bldg. (weight 1).. Unweighted average of: Associated General Contractors ENR—construction.....	SA SA SA M M	ENR—construction. ENR—construction. ENR—construction. None. None.
Conservation and development.....	Unweighted average of: Associated General Contractors ENR—construction.....	M M	None. None.
<b>All other public:</b>			
Petroleum pipe line.....	Unweighted average of: Handy—electric plant..... Handy—gas plant..... Handy—utility bldg..... ICC—railroad.....	SA SA SA A	ENR—construction. ENR—construction. ENR—construction. ENR—construction.
All other.....	Unweighted average of: Associated General Contractors ENR—construction.....	M M	None. None.

<sup>1</sup>Indexes selected as appropriate deflators for the different types of construction.<sup>2</sup>Period for which the deflating indexes are available (A=annual; SA=semi-annual; Q=quarterly; and M=monthly).<sup>3</sup>In those instances where the deflating index is not available on a monthly basis, monthly figures are estimated by interpolation.

The cost indexes used in adjusting dollars actually spent to a constant value in terms of 1947-49 prices are listed on page 77. The choice of "appropriate" indexes to use as deflators was based on an examination of the descriptions of all available cost indexes (such as those presented on pages 72-75). Each index selected was the one which appeared to most nearly approximate in coverage and composition the type of construction to be deflated. Other factors being equal, national indexes were given preference over regional or local indexes. Since the "adjusted" series is intended to be a rough measure of the physical volume of new construction, in the period from 1933 to 1943 expenditures for work relief construction were deflated for the lower rate of efficiency that prevailed on such projects.

### NONFARM DWELLING UNITS STARTED

Definitions of dwelling units have been fairly consistent over the period covered by this series. They usually have been expressed, however, in terms of the type of accommodations provided. The definitions have not attempted to specify the size, or even the number of rooms required to make up a dwelling unit. They do not take account of changes in the types of structures that may be popular at any given time, i.e., bungalows, ramblers, or two-story houses. These factors affect the cubic content and the cost.

A brief discussion of the methods used by the Bureau of Labor Statistics in compiling the figures on housing starts was included in Appendix B under the section devoted to the derivation of the private nonfarm residential building expenditure series. For a more complete description, and for definitions, see "Estimating National Housing Volume," in "Techniques of Preparing Major BLS Statistical Series," BLS Bulletin 1168, available at 65 cents a copy from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. (See outside back cover.)

### SQUARE FEET OF FLOOR AREA IN NONRESIDENTIAL BUILDINGS

The F. W. Dodge Corporation has given permission for the reproduction of its data on the number of square feet of floor area involved in contracts awarded for selected types of nonresidential buildings. It should be pointed out that, while the F. W. Dodge series on value of contracts awarded includes alteration projects, as a rule these projects do not result in the creation of additional floor space. The data given in this section represent both private and public buildings of the types specified.

